

FACTORS ASSOCIATED WITH NEWLY GRADUATED NURSES'

INTENT TO LEAVE CURRENT POSITION IN U.S. ACUTE CARE HOSPITALS:

A DESCRIPTIVE RESEARCH STUDY

USING SECONDARY DATA ANALYSIS

BY

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Submitted to the graduate degree program in Nursing and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Date approved: July 17, 2014

Abstract

This study aimed to identify the individual, unit-based, and hospital-based characteristics correlated with new nurse intent to leave their current positions (ITLcp) in U.S. acute care hospitals.

For more than forty years, new nurses have experienced difficulty adjusting to their professional role. Poor transitions from academia to practice have resulted in significant financial drains on hospitals while causing physical and emotional symptoms for new nurses. It has been suggested that new nurses need 2-3 years of experience to become competent, and yet, many dissatisfied new nurses leave their positions within the first two years, and some leave nursing altogether. Given predictions of a serious shortage of professional nurses, it is imperative to address factors associated with negative transitional outcomes.

This secondary data analysis used cross-sectional survey data from nurses with less than two years of professional tenure from the 2012 National Database of Nursing Quality Indicators™ (NDNQI®) RN Survey with Job Satisfaction Scales and NDNQI patient census and staffing data (N = 8343). The data were analyzed using three-level hierarchical linear modeling to identify factors that were significantly correlated with ITLcp in new nurses.

Two unit-based factors, unit-type and the nurse-nurse relationship were associated with new nurse ITLcp. New nurses working on adult medical surgical units had comparatively higher ITLcp than their peers in neonatal, pediatrics, or critical care units. Several individual factors were significantly correlated with higher ITLcp including younger age, male gender, longer tenure on unit, night shift, lower job satisfaction scores, lower perception of quality of care, and inadequate orientation. Hospital based factors of Magnet status, hospital size, and teaching status were not correlated with ITL-cp in this sample.

This study offers a conceptual model of factors associated with new nurses job intention.
The model can be applied to new nurse transition programs.

Acknowledgments

As I reach my goal of becoming a doctorally prepared nurse, I wish to express my gratitude to those who have helped me along this journey. First, I am forever grateful to my husband, a steadfast source of support and encouragement. I also wish to acknowledge my parents; they stressed the importance of learning, established high expectations, and helped us achieve them. To my own children, thank you for your patience as I have worked to achieve my personal intellectual goals. Although the journey has presented a few trials, I hope my journey has inspired your own love for learning.

This achievement would not have been possible without the support of my co-workers and my boss, Nelda Godfrey. I appreciate the caring concern you have shown, not to mention your patience as I dedicated much of my energy to this educational process. To my colleague and fellow PhD student Cara Busenhardt, you have been my friend, my study buddy, and my sounding board. Thank you!

And finally, thank you to my faculty, my committee, and particularly my chair, Dr. Karen Wambach. Every teacher and mentor that I have encountered has helped prepare me for my role as a PhD prepared nurse, and I will carry what I have learned from each of you to make me a better teacher and researcher. To my committee members, each of you played a unique role in this dissertation, and I appreciate your unwavering support, guidance, and your expertise.

I look forward to the next phase of my career, as a new doctorally prepared nurse, I suspect my education has just begun!

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Chapter One: Introduction

Background

Many new Registered Nurses (RNs) have experienced difficulty transitioning from academia into the professional role. The phenomenon has been described in multiple ways over the years; initially coined as “reality shock” by Kramer (1974), then “transition shock” (Boychuk-Duchscher, 2009) and most recently “environmental reality shock” (Kramer, Brewer, & Maguire, 2013). These challenging transitions carry high costs in terms of patient safety, and financial burdens to the agency. Additionally, the physical and emotional tolls on the new nurse have resulted in high rates of turnover and some new nurses even leave the profession. A critical shortage of RNs is predicted by 2030 (Staiger, Auerbach, & Buerhaus, 2012) so it is important to understand why new nurses become dissatisfied and leave their jobs and/or the profession. Armed with the evidence, academics would be positioned to better prepare nurses for their role and agencies could implement high impact transitional programs to safeguard patients while providing satisfying work environments for the new nurse.

In Chapter One, I explain the study aims and describe the study background in terms of the history of difficult RN transition, the impact on patient safety and quality, the financial burden to the organization, and the potential impact on the nursing shortage. I also define key terms and assumptions and introduce a conceptual framework to guide the study. In Chapter Two, I share a systematic review of the literature that was focused first on conceptual models of new nurse transition. First I summarize new nurse transition models, then I provide a summary of models reflecting job intention of the general nursing workforce. I then present a model that incorporates the variables known to influence new nurses’ transition into a job intention model for new nurses. In Chapter Three, I delineate the study methodology. The results are detailed in

Chapter Four, including a detailed description of the sample and the results of the three-level hierarchical logistic analysis. In Chapter Five I provide a discussion of the results.

Problem Statement

The transition between academia and practice has been notoriously difficult for the new registered nurse (RN). Problematic transitions are costly to agencies, threaten patient safety, and are both emotionally and physically grueling to new nurses. These new nurses often leave their first positions before becoming competent care providers and some leave nursing all together. By the year 2030, a critical shortage of professional nurses is predicted. In order to retain new nurses in the workforce, it is crucial to delineate the constructs and concepts of job satisfaction that are important to the new nurse.

For the overall acute care nursing workforce, job satisfaction has been deemed as the best predictor of a nurse's intention to stay in their current position. Intention to stay has been defined as a nurses "perceived likelihood of an individual staying within an organization" (Cavanaugh & Coffin, 1992, p. 1370). Conversely, intention to leave one's current position, (ITLcp) and intention to leave the profession (ITLprof) are the best predictors of actual turnover (Boyle, Bott, Hansen, Woods, & Taunton, 1999; Cavanaugh & Coffin, 1992; Simon, Müller, & Hasselhorn, 2010). Nursing turnover has been defined as "the process whereby nursing staff leave or transfer within the hospital environment" (Hayes et al. 2006).

Several attributes of the work environment have been associated with decreased job satisfaction, ITLcp, and turnover. Examples include available resources, inadequate remuneration, the quality of the nurse practice environment, leadership traits, group cohesion, and level of employee commitment to the organization (Kelly, McHugh, & Aiken, 2011; Ma, Lee, Yang, & Chang, 2009; Palumbo, Rambur, McIntosh, & Naud, 2010; Parry, 2008). In this

manuscript, *intention to leave current position* is used synonymously with *turnover intention*.

The literature supports a high correlation between intent to leave and actual turnover (Hayes et al., 2006), but it is not known if new nurses are attracted to the same work environment qualities that foster retention in the general RN workforce. In fact, in some studies of retention, new nurses were excluded from the study sample (Cavanaugh & Coffin, 1992). Turnover intention is a more useful variable than actual turnover because it enables organizations to take action to retain employees.

Nursing schools have been turning out record numbers of graduates (AACN, 2011), but even so, it is projected that the number of nurses in 2030 will fall short of the predicted need (Staiger et al., 2012). Once employed, new nurses experience a tumultuous transition from the educational setting to the workplace, and 35-61% of them leave their first jobs within a year (Boychuk-Duchscher & Cowin, 2004) and some leave nursing all together (Benner, 1982; Boychuk-Duchscher, 2007, 2009; Boychuk-Duchscher & Cowin, 2004; Boychuk-Duchscher & Myrick, 2008; Boyck-Duchscher, 2008; Kovner, Brewer, Greene, & Fairchild, 2009; Martin & Wilson, 2011; Rheaume, Clement, & LeBel, 2011). In order to build the workforce, Nursing must provide more effective transitions from academia to practice and create positive work environments (Aiken, Clarke, & Sloane, 2002; Aiken, Clarke, Sloane, Lake, & Cheney, 2008; Baernholdt & Mark, 2009).

Background and Significance of the Problem

Over forty years of troublesome transitions for new nurses. In 1974, Kramer coined the term “reality shock” to describe the tensions that new nurses faced as they transitioned between academia and practice. The conflict was attributed to a mismatch between the actual role of the professional nurse and the role that the new nurse anticipated as a result of their

academic preparation. New nurses felt unprepared for their work and many had idealistic expectations of the workplace. Kramer's diagnosis of "reality shock" over forty years ago continues to ring true in the current literature (Boychuk-Duchscher, 2009; Bratt & Felzer, 2012; Godinez, Schweiger, Gruver, & Ryan, 1999). Given that each year the healthcare environment has become more complex in terms of technology, patient acuity, and shorter lengths of stay; the goal of achieving smoother transitions for the new nurse has never been more challenging.

The Toll on the Agency and on Patients

Quality and safety. Transitioning to any professional role has been described as a moral and symbolic transformation from lay person into a professional (Crowe, 1994). However, before an individual can embody the professional role, one must first possess the requisite skills and knowledge of the profession. Historically, new nurses have described insecurities with their ability to provide basic nursing care. Self-identified performance gaps have included clinical skills as well as judgment and reasoning skills (Boychuk-Duchscher, 2008; Kantar, 2012, Kuiper, 2002; Gustavsson, Hallsten, & Rudman, 2010; Schoessler & Waldo, 2006). Those hiring and training new nurses agree that gaps exist between academic preparation and readiness for practice and these performance gaps raise concerns related to patient safety and satisfaction (Berkow, Virkstis, Stewart, & Conway, 2008). It follows that the new nurse's ability to provide skilled nursing care will be even more scrutinized now that healthcare reimbursement is based on quality and safety performance measures and patient satisfaction (Balik, Conway, Zipperer, & Watson, 2011).

Benner (1982) used the Dreyfus Model of Skill Acquisition to describe the predictable and incremental skill development of RNs. Benner's model described students as *Novices* who operate according to the rules; lacking experience, they are unable to use discretion and

judgment to guide task performance. New nurses are commonly categorized as *Advanced Beginners*. Benner describes their performance as “marginally acceptable” (p. 404) and mentors are required to point out important aspects of care situations. With minimal experiences to draw from, new nurses are particularly at risk to make errors. In fact, during their first six months of practice as many as 75% of nurses reported in the month prior to the survey they could recall at least one risk for practice error (Roth & Johnson, 2011). New nurses do not reach Benner’s third level of *Competence* until they have been on the job two or three years.

Financial burden. The financial burden associated with nursing turnover includes both direct and indirect costs and the cost of replacing a nurse has been estimated to be 1.2 to 1.3 times the nurse’s annual salary (Li & Jones, 2013). Direct costs included those associated with advertising and recruiting, staffing unfilled positions, and hiring costs. Indirect costs were calculated from after hire expenses such as costs associated with orientation and training. Additional indirect costs reflect decreased productivity of the new nurse and the mentor and costs associated with decreased customer satisfaction. Over time dissatisfied nurses tend to disengage with their work as a part of the burnout phenomenon (Gustavsson et al., 2010). Preventing detachment and disengagement of the Nursing workforce should be of heightened concern to administrators as disengaged nurses have the power to negatively impact the financial bottom line through patient satisfaction scores. The job satisfaction of hospital nurses has been linked to better patient outcomes, for example, Choi, Bergquist-Berlinger, and Staggs (2013) reported an inverse relationship between nurse job satisfaction and the number of hospital acquired pressure ulcers. The cost of turnover for a new nurse is similar to those of the general RN workforce (Beecroft, Kunzman, & Krozek, 2001).

Intensifying the Nursing Shortage

A forecast of the United States RN workforce predicted a shortage of over 900,000 nurses by the year 2030 (Juraschek, Zhang, Ranganathan, & Lin, 2012). The most significant predictor of the shortage is linked to an aging population, who will place greater demands on the healthcare system. Juraschek et al. (2012) used projected personal health expenditures from the Centers for Medicare and Medicaid Services (CMS) data along with United States Census Bureau's (USCB) estimates of population size and age, offering nursing workforce projections that account for an increasing use of the healthcare system associated with aging.

In the supply - demand RN workforce equation, as many baby boomer nurses reach retirement age, the supply side of the equation will also be negatively impacted. The largest age related cohort of nurses is between 45-54 years of age and the average RN age is likely to continue to rise, peaking in 2016. In fact, aging baby boomers comprise 40% of the current healthcare workforce. Historically, the number of nurses employed beyond age 65 tends to remain stable, so when this large cohort of nurses reaches age 65, a high RN workforce attrition rate is expected (Juraschek et al., 2012).

Analyses of recent RN workforce changes have demonstrated that as unemployment rates rose during the recent United States economic recession, so did the size of the RN workforce. In fact, Staiger et al. (2012) reported a 1.2 % increase in the size of the nation's RN workforce with every 1% point increase in the unemployment rate. Healthcare jobs were not impacted by the economic downturn so many RNs reacted to the economic downturn by rejoining the workforce or increasing their hours to improve their family's financial security. These same nurses are likely to leave the workforce when the economy recovers. The impact on the nursing workforce

will be compounded if this sector leaves the workforce at the same time the baby boomer nurses retire.

In 2014 approximately 31 million previously uninsured Americans will receive insurance coverage via the Affordable Care Act. Decreased compensation packages for providers and hospitals are also predicted as a part of healthcare reform (Staiger et al., 2012). To offset the costs associated with more patients and reduced reimbursements, healthcare agencies may cut the RN workforce making fewer jobs available to the new RNs. Unfavorable job markets make it harder to recruit RN students. The timing of these economic events is very concerning because as more patients are seeking care a large group of nurses will likely retire. Given the economic restrictions, the recruitment atmosphere for nursing is bleak. Clearly, the nursing profession can no longer afford to lose qualified nurses as an outcome of poor academic to practice transition.

In summary, difficult transitions from academia to practice is not a new phenomenon for Nursing. For over forty years, new nurses have experienced difficulty adjusting to their professional role. They have felt unprepared for the complex, demanding work environments and ill-prepared for real nurse work. These difficult new nurse transitions are associated with a significant financial drain on the agency and cause both physical and emotional symptoms for the new nurses. When patients are assigned to new nurses who are developing the requisite skills of the RN role, they experience more safety risks than those assigned to seasoned nurses. This situation has the potential to put patients in harm's way, and at a minimum, the scenario may be dissatisfying for all involved. Dissatisfied new nurses leave their positions prior to becoming competent care providers and some decide they are not cut out for the profession—leaving nursing altogether.

Purpose and Significance of the Study

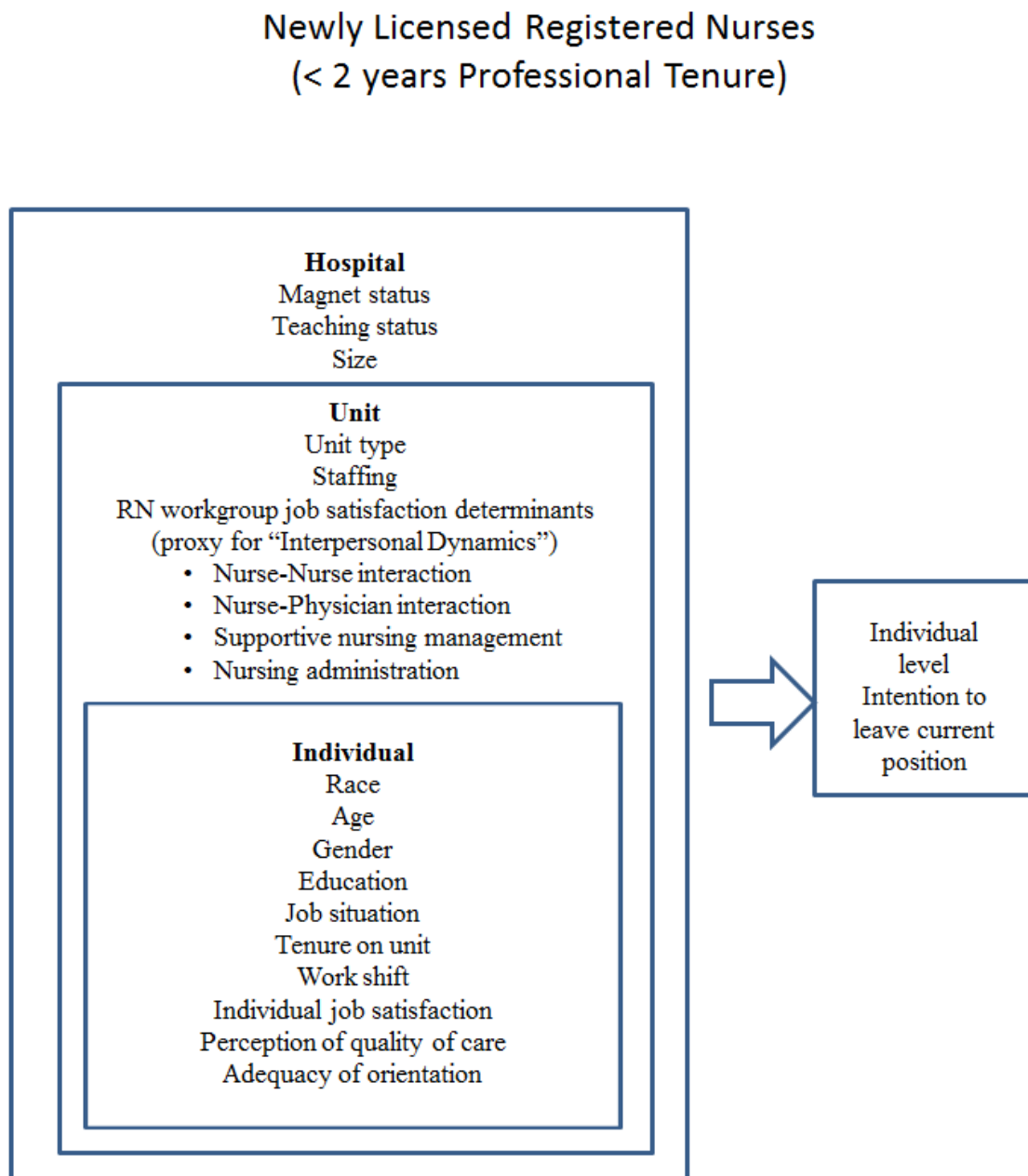
The purpose of this research is to expand the work of previous researchers by developing and testing a comprehensive model of new nurse intent to leave acute care hospitals. A new nurse who is transitioning between academia and practice has unique needs that should be addressed to create satisfying work environments. The ultimate goal is to transition new nurses in satisfying work environments until they reach competency. To date, there is no comprehensive model of turnover intention for new nurses. The ideal conceptual model would incorporate individual characteristics, environmental characteristics, the person-job fit, and the influence of outside forces such as the job market. Using a secondary analysis of data from the National Database of Nursing Quality IndicatorsTM (NDNQI®) this study will explore new nurse turnover intention as an outcome of individual characteristics and unit-based RN satisfaction. By shifting the focus from the individual to the unit, it is possible to capture the essence of job satisfaction as it relates to the unit-based culture. This study is unique as it is the first to consider links between specified RN workgroup satisfaction determinants, namely nurse-nurse interaction, nurse-physician interaction, supportive nursing management and nursing administration as a proxy for the relationship capacity of the unit-based team. Including these measures has the potential to capture the impact of the nursing unit's culture on the new nurse's transition.

Study Aim

The aim of this study is to determine the relationship between selected individual factors (race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation), and unit-based factors (unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management,

and nursing administration) controlling for selected hospital characteristics (Magnet® status, teaching status and size) on new nurses' intention to leave their current positions (ITLcp) in acute care facilities. See Figure 1.

Figure 1
Conceptual Model for Newly Licensed RN (NLRN) Intent to Leave Current Position in Acute Care.



Research Question

The research question addressed in this study follows:

Are there relationships between selected individual factors (race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation), and unit-based factors (unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration) on new nurses' intention to leave their current positions when controlling for selected hospital characteristics (Magnet® status, teaching status and size)?

Theoretical Model

The proposed conceptual model for NLRN Intent to Leave Current Position Acute Care depicts the nature of the relationships between the individual nurse within the unit and within the hospital. The model acknowledges that contextual relationships exist between nurses on a unit, and within a hospital. The variables that have been correlated with an individual nurse's intention to leave their current acute care position are represented within a two level hierarchical model of nurses within units, while controlling for selected hospital characteristics. The conceptual model was adapted from the NDNQI®-Adapted Index of Work Satisfaction (Taunton et al., 2004). Taunton's model combined **antecedents** (unit type, workload, age, experience, and education) with **defining characteristics** (general satisfaction with the work and its components) to result in consequences of commitment, anticipated turnover, and patient outcomes. This model does not include organizational commitment and patient outcomes because these outcomes are not relevant to the research question.

Definition of Terms

The following definitions are provided to ensure a consistent use and understanding of terms that are relevant to this study:

Acute Care: Hospital based patient care.

Intent to Leave Current Position: perceived likelihood of leaving one's position in the next year; includes plans to change units within a hospital or leave the hospital.

Job Satisfaction: "The extent to which people like their jobs" (Stamps, 1997).

New Nurse and Newly Licensed Registered Nurse (NLRN): a professional nurse who has not yet reached a level of competence. According to Benner's model of nursing development, it takes most nurses approximately two years to reach competence (1982).

Nursing turnover: "The process whereby nursing staff leave or transfer within the hospital environment" (Hayes et al., 2006).

Turnover Intention: employment plan for the next year; used synonymously with *Job Intention*

Study Assumptions

The following assumptions are foundational to this study

1. Factors that are disruptive to a new nurse's transition between academia and practice cause decreased job satisfaction and premature turnover.
2. New nurses reach Benner's level of *Competence* after two years (1982).
3. Job satisfiers and dissatisfiers are different for new nurses compared to experienced nurses.
4. A new nurse's decision to leave their position is a precursor to actual turnover.
5. Nursing turnover is detrimental to patient safety and a hospital's financial bottom line.

6. New nurse job intention occurs within the context of the organization and the unit.
7. Contextual characteristics mediate the effect the context has on an individual's behavior.
8. Contextual characteristics can be identified, observed, and measured.
9. Contextual characteristics result in complex (nested) sources of variability.

Limitations

Any secondary data analysis has limitations associated with the fact that the primary data set was designed to answer a different research question. For that reason the data collected, and the methods of collection would likely be different than would have been otherwise selected (Doolan & Froelicher, 2009). Since the primary survey aimed to capture unit-based satisfaction among all nurses, some of the variables may not be significantly associated with job intention/turnover intention of the individual NLRN. Although the variables selected for the NLRN Intent to Stay Model were important in the outcomes associated with new nurse transition and job satisfaction, the variables may not be significantly associated with job intention/turnover intention. It is also possible that important variables have been omitted from the model inadvertently or because they were not included in the dataset used for the secondary analysis. For example, the NLRN's perception of job readiness has been correlated with turnover, but job readiness is not captured in this survey and represents an area for further research.

Summary

Difficult transitions between academia and practice have been documented in the nursing literature for 40 years. These transitions are dissatisfying to the new nurse and are associated with unpleasant physical and emotional symptoms. Many nurses leave their first RN positions before they have become competent care providers, and some leave the nursing profession.

Given the looming nursing shortage, it is critical to understand the determinants of job satisfaction for new nurses and take measures to improve new nurse transition to keep them in nursing. In Chapter Two I review conceptual models associated with transition searching for the variables of importance to the new nurse in terms of job satisfaction and job intention. Then I reviewed conceptual models associated with job intention/turnover intention in the general nursing workforce.

Chapter Two

Literature Review

In Chapter Two, I will present an overview of the nurse transition research and conceptual models that have been used to depict the variables of NLRN transition. The variables will be presented in a framework consistent with the Systems Research Organizing Model (SROM) such that variables are organized under the constructs of *Client*, *Context*, *Action Focus*, and *Outcome*. The general nursing workforce literature is also explored for job intention models. Finally, a conceptual model that captures the essential variables and constructs is presented.

NLRN transition is a mature topic with a large diversified base of knowledge. For this reason, I conducted an integrated review of the literature, my goal being to systematically retrieve conceptual models and organize the variables of concern to NLRN transition in a unique way offering a fresh perspective on the phenomenon.

Overview

The nursing workforce in the United States may be unable to meet the population's future healthcare needs. The need for Registered Nurses (RNs) is projected to increase by 26% in the next ten years, (U.S. Department of Labor, 2012). The increased demand for healthcare delivered by RNs will be driven by several factors: (a) 32 million persons will likely have health insurance coverage in 2014; (b) the baby boomers will become Medicare eligible by 2020; and (c) the number of persons with chronic conditions including obesity continues to grow (Buerhaus, 2012). The economic recession has provided some short-term relief to the nursing shortage because many baby boomer nurses postponed retirement. As the economy recovers, retirement eligible nurses will likely leave the labor force, further restricting the growth of the RN workforce.

Nursing schools have been turning out record numbers of graduates, (American Association of Colleges of Nursing, 2011), but even so, it is projected that the number of nurses in 2020 will fall 20% short of the predicted need (Buerhaus, Staiger, & Auerback, 2000). Once employed, new nurses experience a chaotic transition from the educational setting to the workplace, and as many as 60% of them leave their first jobs within a year. Some leave nursing all together (Boychuk-Duchscher, 2009; Kovner et al., 2009; Martin & Wilson, 2011; Rheume et al., 2011). In order to build the workforce, Nursing must provide more effective transitions from academia to practice and create positive work environments (Aiken et al., 2008; Baernholdt & Mark, 2009).

The discussion of new nurse transition dates back to the late 1960's when Kramer explored the phenomenon of "Reality Shock" (1974). Since then, much has changed in healthcare. For example, historically graduates from nursing programs were eligible to work as a professional nurse upon graduation, and were referred to as "Graduate nurses" or "new grads". Now the privilege of working as an RN comes after licensing and in the literature these new nurses are referred to as "Newly Licensed Registered Nurses" (NLRNs). Henceforth in this manuscript, the term NLRN will be used to describe new graduates, new grads, and new nurses.

Healthcare environments have also drastically changed since the 1970's. Most NLRNs are employed in acute care, and they are rapidly integrated into today's complex healthcare organizations. In the name of efficiency, NLRNs are immersed in a complex web of forces driven by a mix of people, processes, technology, procedures, organizational culture, and politics. The pace is fast and the performance expectations have never been higher. With the onset of pay for performance, organizations are being held accountable to high standards of

quality and efficiency. Ultimately, the financial health of the organization is dependent upon successful transitions of NLRNs into the professional role.

Societal and political influences impact both how healthcare is delivered and how the NLRN interacts with the healthcare delivery system. The stakes are high and now more than ever nursing needs an approach for preparing and on-boarding NLRNs that is based on evidence. This paper offers an integrative review and critique of a mature literature base that concerns NLRN transition to 1) discover and describe the concepts and the conceptual models that have been used to depict NLRN transition; 2) analyze associated research findings to delineate the concepts of significance for NLRN transition and job intention. The findings were used to refine a conceptual model for testing. The results of the review will be presented using the Systems Research Organizing Model (SROM).

The Systems Research Organizing Model

Concepts from the NLRN transition models will be discussed within the framework of the Systems Research Organizing Model (SROM). A variation of traditional systems theory, the SROM is based in Donabedian's Structure Process Outcome model and aligns with principles from Complexity Science. In SROM, healthcare delivery systems are viewed as a complex web of interrelated complex adaptive systems. Changes in one part of the system will predictably impact the entire system. The four constructs of the SROM: Client, Context, Action Focus, and Outcomes are also reflective of the constructs of the Nursing paradigm: Person, Environment, Nursing and Health. The SROM constructs are defined as:

- *Client*: The system inputs. The model, temporally begins with the client. The client may include patients, staff, or in the context of this discussion, the client is the NLRN.

- *Context*: The environment. The context is static, meaning contextual variables are not being manipulated.
- *Action Focus*: The intervention or the independent variable.
- *Outcome*: The measures of performance, results of the interventions within a system. (Brewer, Verran, & Stichler, 2008).

The SROM is a flexible and appropriately abstract model in which the purpose of the research guides the placement of the variables. Because much of the research around NLRN transition is descriptive in nature, these review findings focus on the constructs of *Client*, *Context*, and *Outcome*.

Methodology

Table 1

Review of literature inclusion/exclusion criteria

Inclusion Criteria	Exclusion Criteria
Published in English	Presented a review of the literature
Based on empirical research	Gray literature
Included an abstract	Studied nurses in rural, residential, or community settings
Targeted new graduates within three years of graduation	Studied transition of other health professions or RN's transitioning to advanced practice roles
Focused on acute care settings	Focused on the preceptor experience. Described programs to support students in transition (continued)

Table 1. Review of literature inclusion/exclusion criteria (continued)

Inclusion Criteria	Exclusion Criteria
	Limited study of nurse transition to specialty practice areas such as mental health, surgery, oncology, obstetrics, pediatrics, emergency department, or ICU. These were eliminated because transitioning in a unit with a specialty focus typically requires longer and more advanced training.

For this review of literature, first CINAHL was searched using major subject headings of *New Graduate Nurse AND transition*. The search returned 312 publications. The titles and abstracts were reviewed for the inclusion and exclusion criteria listed in Table 1.

Seventeen articles from CINAHL met inclusion criteria. Then the PUBMED data base was searched using the same terms (*New graduate nurse AND transition*). One hundred and fifty five publications were returned. After applying inclusion and exclusion criteria and eliminating duplications, a total of 29 publications were reviewed for the presence of conceptual models describing new nurse transition. For the purposes of this paper, a conceptual model was defined as: A visual representation of theoretical constructs and variables of interest to guide research (Stanford Institute for Higher Education Research, 2003). Themes emerging from Qualitative research were not considered as theoretical models, but concepts and themes from all 29 publications were considered in the interrogation of the eighteen models that were reviewed.

Findings

Although the model constructs tended to overlap, for the purposes of analysis, the applicable models will be discussed with the context of seven categories: (1) Socialization and Relationships, (2) Transition, (3) Learning Theory, (4) Authentic Leadership, (5) Systems Based

Models, (6) Job Demands-Resources Model, and (7) Professional Role Conflicts. See Table 2 for a summary of each model and the associated research.

Table 2

Publications featuring conceptual models associated with NLRN transition

Type	Brief description of study and model
Socialization and Relationships N = 5	<p>Gustavsson, Hallsten, and Rudman (2010) Explored occupational socialization in NLRNs. Used a Rasch measurement model early career burnout is demonstrated as a one-dimensional sequential model beginning with pressure, then frustration, and finally withdrawal and emotional detachment.</p> <p>Little, Dittmer, and Bashaw (2013) Described transition program grounded in Watson's relationship based care. Model suggested a residency curriculum guided by caregiver-self, caregiver-patient and caregiver-team relationships would result in effective and efficient transition program. Suggested outcome measures of nurse retention, engagement, stress levels, knowledge and cost/benefit ratio.</p> <p>Scott, Engelke, and Swanson (2008) Study was a secondary data analysis of data collected by the North Carolina Center for Nursing. Conceptual model suggested that Anticipatory socialization factors coupled with organizational socialization factors impact socialization outcomes of job satisfaction, career satisfaction, organizational commitment, intent to leave/stay, turnover and intent to leave/stay in the profession.</p> <p>Tominaga and Miki (2011) Used Scott's model to study impact of NLRN Anticipatory Socialization factors (education, life experiences, and expectations) coupled with Organizational Socialization factors (desired unit, environmental realities, and person-environment fit) on Socialization outcome (intent to leave).</p> <p>Washington (2013) In small sample (N=31) single site quasi-experimental pre-post design, studied evolution of the preceptor and new-graduate relationship over time. Based on Peplau's theory of interpersonal relationships, model proposed NLRN and preceptor would progress through predictable phases: Identification phase, exploitation phase, and resolution phase.</p>
Transition N = 3	<p>Boychuk- Duchscher (2008, 2009) Qualitative themes depict new nurse transition in three phases: Doing, being and knowing. <i>Transition Shock Theory</i> proposed typical transition challenges and nurses' responses.</p> <p>Bratt and Felzer (2012) Longitudinal correlational design, 468 NLRNs from 16 cohorts in more than 40 hospitals. Model proposed specific personal characteristics coupled with job characteristics and work experience to impact organizational commitment.</p> <p>Godinez, Schweiger, Gruver, and Ryan (1999) Primary qualitative themes of interpersonal dynamics, institutional context, guidance, transitional processes, and real nurse work are displayed within over-lapping ovals to depict the constructs associated with new nurse transition.</p>

(continued)

Table 2. Publications featuring conceptual models associated with NLRN transition (continued).

Type	Brief description of study and model
Learning theory N = 3	<p>Herdrich and Lindsay (2006) Measured the impact of a transitional program using reflection in a community learning design. Measured outcomes of job satisfaction, competency, professional practice, critical thinking, and organizational commitment. Model proposed that learning within team context improves results and knowledge through individual reflection and improved action. Simultaneously organizational reflection and action results in increased organization intellectual capital and achievement of mission/goals.</p> <p>Kuiper (2002) Using verbal protocol analysis of reflective journals Kuiper evaluated the impact of self-regulated learning on problem solving and decision making. Qualitative themes emerged to describe concerns of NLRN and the evolution of their thinking patterns.</p> <p>Schoessler and Waldo (2006) Transition was described in terms of themes and marker events that emerged from qualitative analysis of recorded NLRN conversations. Researcher conceived model combined Kolb's Experiential Learning Cycle with Bridges Transition management, and Benner's Novice to Expert Theory.</p>
Authentic leadership N = 2	<p>Giallonardo, Wong, and Iwasiw (2010) Non-experimental survey design. Model proposed that presence/absence of authentic leadership impacts work engagement and job satisfaction.</p> <p>Spence Laschinger, Wong, and Grau (2012a) Studied the effect of authentic leadership on workplace bullying and burnout, job satisfaction and turnover intention. Model implied authentic leadership would impact emotional exhaustion, job satisfaction and turnover intentions by impacting workplace bullying (mediator).</p>
Systems based models N = 3	<p>Newhouse, Hoffman, Suflita, and Hairston (2007) Quasi-experimental post-test only design compared impact of transition program (process) on retention, sense of belonging, organizational commitment, and anticipated turnover (outcomes). Used non-volunteers (standard orientation) as control.</p> <p>Hatler, Stoffers, Kelly, Redding, and Carr (2011) Analyzed the impact of a dedicated transition unit (structural change) on NLRN transition, unit staff and the organization.</p> <p>Kramer, Brewer, and Maguire (2013) Studied safety and quality outcomes within the context of certain organizational and personal factors. Used longitudinal design; N= 468 NLRN. Assessed differences between expected practice environment and actual practice environment to determine level of Environmental Reality Shock. Model proposed that direct and interactive relationships between the client, the context, and the action focus impact outcomes. Outcomes included NLRN issues and concerns, quality of care on unit, and degree of Environmental Reality Shock.</p>
Job Demands-Resources Model N = 1	<p>Spence Laschinger, Grau, Finegan, and Wilk (2012a) Used descriptive correlational design to learn how job demands (workload and bullying), job resources (job control and supportive environment) impact engagement, burnout, and turnover intent. Hypothesized model implied bullying and workload demands result in</p>

(continued)

Table 2. Publications featuring conceptual models associated with NLRN transition (continued).

Type	Brief description of study and model
	emotional exhaustion and impact mental health and turnover intent. Concurrently, psychological capital, job control and supportive environment impact work engagement and turnover intent.
Professional role conflicts N = 1	Kramer (1974) Groundbreaking study proposed that differences between the values taught in academia (professional) and the work world values (bureaucratic) resulted in “Reality shock”. Nursing students who were “immunized” with a small dose of reality shock during school (Anticipatory socialization program) experienced less role conflict and stayed in their jobs longer.

A nineteenth model was discovered in the search. Tapping, Muir, and Marks-Maran (2013) based a NLRN transition program on Super’s career theory. Super’s theory offered explanations of why persons chose specific careers and the theory claimed that a lifetime vocation is experienced in predictable stages according to one’s age. The authors implied that NLRNs would be in the implementation stage (ages 21-24), and as such, they needed opportunities to engage in career development in a planned and reflective way. Although the publication met the search criteria, the model was not included in the analysis because the fit of the theoretical framework was questionable. Many NLRNs are embarking on second careers so the average age of nursing graduates is between 28 and 33 (U.S. Department of Health and Human Services, 2010). Additionally, the theoretical underpinnings were not evident in the description of the nurse residency program.

Beecroft, Dorey, and Wenten (2007) studied turnover intention in a large sample of NLRNs working in pediatric hospitals. Their model combined *Individual Characteristics*, *Work Environment*, and *Organizational Factors* to determine new nurse turnover intent. The study offered an adequate sample size (N = 889), but the sample and data were compiled over 7 years, with no controls for history over the study interval. The model was excluded from this

integrative review because their study of transition was limited to a specialty focus of pediatrics; however, the model is mentioned here because this work is frequently cited in the NLRN literature.

Table 3 provides a list of variables that have been studied within conceptual models of new nurse transition. The variables were organized as *Client*, *Contextual*, or *Outcome* variables as per the SROM. In keeping with the model, some variables were listed as both *Outcome* and *Client/Contextual* variables as determined by the role of the variable in the research design. The conceptual models will be presented within the aforementioned seven categories.

Table 3

Concepts associated with NLRN transition; organized according to the Systems Research Organizing Model's constructs of Client, Context, and Outcome.

Client		Illustrative Citations
Constructs	Variables	
Demographics	+ Marital status ¹⁴ + Knowledge/ Intellectual capacity ^{4,10} + Sentiment toward hospital ¹⁷ ± Age ^{2, 14, 17} ± Race ^{2, 14} ± Gender ^{2, 17} ± Time in current job/current unit ^{1, 2, 9, 15, 16} ± Education ^{2, 8, 9, 14, 17} - Past degrees ^{2, 14} - GPA ² - Role socialization theory course ² - Externship/Internship ^{9, 14} - Clinical experience w/preceptor ^{2, 9} - Capstone in current hospital ² - Prior healthcare work experience ^{2, 9} - Family culture ¹⁴ - Personal factors ¹⁴	1. Duchscher (2009) Boychuk-Duchscher (2009) 2. Bratt and Felzer (2012) 3. Giallonardo, Wong, and Iwasiw (2010) 4. Godinez, Schweiger, Gruver, and Ryan (1999) 5. Gustavsson, Hallsten, and Rudman (2010) 6. Hatler, Stoffers, Kelly, Redding, and Carr (2011) 7. Herdrich and Lindsay (2006) 8. Kramer (1974) 9. Kramer, Brewer, and Maguire (2013) 10. Kuiper (2002) 11. Little, Ditmer, and Bashaw (2013) 12. Newhouse, Hoffman, Suflita, & Hairston, (2007)
Other	+ Job Readiness ¹⁷ + Job satisfaction/job stress ^{2, 14,} + Job control ¹⁶ + Eagerness ⁴	(continued)

Table 3 Concepts associated with NLRN transition; organized according to the Systems Research Organizing Model's constructs of Client, Context, and Outcome. (continued)

Client		Illustrative Citations
Constructs	Variables	
Other (cont.	+ Psychological capital ¹⁶ + Organizational skills ^{4, 13} ± Basic nursing skills and abilities ^{1, 2, 4, 13, 17}	13. Schoessler and Waldo (2006) 14. Scott, Engelke, and Swanson (2008) 15. Spence Laschinger, Wong, and Grau (2012)
Organization characteristics	+ Rural/urban ^{2, 17} - Size ¹⁷ - Academic/community ⁹ - Number of nurses employed ¹⁸	16. Spence Laschinger, Grau, Finegan, and Wilk (2012) 17. Tominaga and Miki (2011) 18. Washington (2013)
Unit characteristics	+ HWE designation ⁹ + Workplace demands/staffing ^{4, 13, 14, 16} + Effort/Reward ¹⁷ + Person-environment fit ¹⁷ + Supportive prof. practice environment ¹⁶ + Learning opportunities ⁴ ± Type ^{2, 4,} ± In desired position ^{1, 2, 17} - Shift ² - Break facilities/rest time ¹⁷ - Quality of nursing care ²	Key: Numeral superscripts assigned to manuscripts alphabetically.
Interpersonal Dynamics Unit-based team	+ Interpersonal dynamics (bullying) ^{4, 11, 13, 14, 15, 16} + Physician interactions ¹³ + Authentic Leadership ^{3, 15}	Impact on Transition outcomes + significant - not significant ± reported results inconsistent
Quality/quantity of transition program	+ Learner rated quality of orientation ^{2, 14} + Academia service partnership ⁷ - Quantity of orientation ¹⁴	
Components of transition program	+ Advanced Practice Nurse as coach ⁶ + Mentoring relationship ^{7, 11, 18} + Attended delegation CE ¹⁴ + Relationship building ¹⁸ + Feedback frequency ^{2, 6} - Attended conflict management CE ¹⁴	
Preceptors	+ Presence of preceptors ^{9, 18} + Preceptor's capacity ^{4, 6, 13} ± Number of preceptors ^{1, 2}	
Learning design	+ Classroom ^{2, 7} + Expert presenters and panels ⁷ + Simulation ⁶ + Professional practice communities ⁷ + Learner directed ⁷	

(continued)

Table 3 Concepts associated with NLRN transition; organized according to the Systems Research Organizing Model's constructs of Client, Context, and Outcome. (continued)

Client		Illustrative Citations
Constructs	Variables	
Learning design	+ Reflective learning ^{7, 16}	
	+ Alternate observations ⁷	
	+ Games ⁷	
	- Length of precepted experience ²	
NLRN Outcomes		
Constructs	Variables	
Expectations	Reality shock ⁸	
	Transition shock ¹	
	Environmental reality shock ⁹	
	Early career burnout ⁵	
Physical Symptoms	Physical signs/symptoms ^{1, 4}	
	Vigor ³	
Psychological Symptoms	Exhaustion/fatigue ^{5, 13, 18}	
	Mental health ¹⁶	
	Loss ^{1, 4, 5, 8}	
	Self-doubt ¹	
	Frustration ⁵	
	Emotional exhaustion ¹⁶	
	Psychological distress ¹⁸	
	Job stress ^{1, 5}	
	Issues and concerns ^{9, 13}	
	Over commitment ¹⁸	
Engagement or detachment	Engagement ^{2, 6, 16}	
	Absorption ³	
	Dedication ³	
	Organizational commitment ^{2, 7, 12, 14}	
Job enjoyment	Sense of belonging ¹²	
	Job satisfaction ^{1, 2, 7, 14, 16}	
	Turnover intention ^{12, 14, 15, 16, 18}	
	Intent to leave profession ¹⁴	
	Retention/turnover ^{12, 14}	
	Career satisfaction ¹⁴	
Job abilities	Job competence ^{1, 6, 7}	
	Communication competence ⁶	
	Decision making ability ^{1, 6, 7, 10}	
	Clinical judgment	
	Critical thinking	
	Individual learning ^{6, 7, 13,}	
	Time management ¹³	
	Compare self to current new grad ¹³	
	Assuming charge nurse responsibilities ¹³	

(continued)

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Table 3 Concepts associated with NLRN transition; organized according to the Systems Research Organizing Model's constructs of Client, Context, and Outcome. (continued)

NLRN Outcomes		Illustrative Citations
Constructs	Variables	
Other	Professional development ⁷ Caregiver-self relationship ^{10, 11} Caregiver-preceptor relationship ¹⁹ Knowledge ⁷	

Focus on Socialization and Relationships

Five conceptual models were classified as Socialization and Relationship based frameworks. Two models were guided by Nursing Theories, and three were grounded in organizational theory from the business world. The Nursing based models will be presented first, followed by the business based models.

Washington (2013) proposed the relationship between preceptor and NLRN be examined using Peplau's theory of interpersonal relations. Peplau proposed time spent in a therapeutic relationship fosters the development of relationship and problem solving competencies in predictable phases. Washington applied this assumption to the preceptor – NLRN relationship predicting the relationship would develop in four phases: **Orientation phase:** Preceptor and NLRN get to know one another and NLRN recognizes need for help with transition.

Identification phase: Dyad discovers learning opportunities and opportunities for NLRN improvement. **Exploitation phase:** NLRN uses preceptor as a resource and support to help meet identified learning needs. **Resolution:** Goals are achieved; NLRN becomes more competent and continues transition.

Washington's model assumed that communications between the NLRN and preceptor are therapeutic. In the study, NLRNs completed an adapted relationship survey prior to and after

orientation. Finding no significant changes in pre-orientation and post orientation relationships, the researcher concluded the relationship remained in the identification phase.

Watson's theory of Nursing: *Human Science and Human Care* was cited as the theoretical guide for a nurse residency program revision (Little, Ditmer, & Bashaw, 2013). The curricular revisions were implemented to streamline the program and conserve institutional financial resources while maintaining the high (95%) one year NLRN retention rates. The revised nurse resident curriculum was built upon the caring relationships identified by Watson: 1) Caregiver-patient, 2) Caregiver-self, and 3) Interpersonal relationships between team members. Watson's model also incorporates the dimensions of leadership, teamwork, professional practice, care delivery, resources and outcomes. Unfortunately, concepts from Watson's theory were not mentioned in the model. However, the model was aligned with the organization's core values of: trustworthiness, innovation, caring, competency, collaboration, and professional nursing.

Scott, Engelke, and Swanson's (2008) model entitled *New Graduate Nurse Transition into the Workplace* was grounded in organizational theory from the business world. The model assumed that work world socialization is accomplished through a combination of factors that fall under two categories: pre-work experiences (anticipatory socialization) and actual work experiences (organizational socialization). *Anticipatory Socialization* factors occurred before employment and drove NLRN's expectations. Scott studied the impact of education, age, race, marital status, knowledge/skills, personality and personal hardiness. Additionally, Scott evaluated prior socialization experiences i.e. life events/demands, and family culture.

A second construct, *organizational socialization* encompassed both the organizational realities and the transitional tactics employed by the organization—or “what happens when the

work begins” (p 76). *Organizational socialization* also included the person/environment fit. The model implied that organizational tactics such as orientation, internships, and supportive relationships with tenured nurses can improve socialization outcomes. According to the model, the outcomes of organizational socialization included job satisfaction, career satisfaction, organizational commitment, turnover and intent to leave/stay in both the organization and the profession.

Scott et al. (2011) used the model to guide a secondary analysis of data from a random stratified sample (N=329) of a large data set collected by the North Carolina Center for Nursing (NCCN). Twelve variables were analyzed: age, race, marital status, education, quantity of orientation, quality of orientation (met or did not meet needs), frequency of staffing shortages, level of job satisfaction (satisfied/dissatisfied), intent to leave current position (within 3 years of hire), and intent to leave nursing (within 3 years of hire). Data were described in terms of current employment status, position type, work settings, number of positions and employers, hours worked per week and average patient caseload per day.

Staffing adequacy was the strongest predictor of job satisfaction. NLRN turnover was also significantly associated with length and quality of orientation. Intent to leave was predicted by job satisfaction, career satisfaction, and by attending a continuing education (CE) program on delegation. It was deduced that nurses who attended the program were struggling with the skill because they were 2.2 times more likely to leave in the first three years than peers who did not attend the delegation CE. Additionally, BSNs were found to be more likely to seek employment in other fields than ADNs (Scott et al., 2011).

Tominaga and Miki (2011) used the same conceptual model to study the impact of *Anticipatory Socialization* factors and *Organizational Socialization* on Japanese nurses' intent to

leave during their first year of practice (N=792, 58% survey response rate). Using a cluster sample randomized by location and city size, the researchers found both *Anticipatory Socialization* (before employment) factors and *Organizational Socialization* (after employment) factors were predictive of ITLorg, but the factors attributed to *Organizational Socialization* explained more of the variance in the model.

The results indicated nurses who were older and those with a junior college degree had higher levels of ITLorg. Tominaga and Miki measured job readiness using the four subscales of a 21-item *Job Readiness Scale* namely, basic nursing skills and abilities, relationship skills, clinical practice expertise and confidence, and being personally suited for nursing work. Intent to leave was highly and negatively correlated with scores on basic nursing skills and abilities, and with feeling personally suited for nursing work. Nurses who worked in a large city, did not have a role model, and had a lower health status scores also were more inclined to want to leave the organization. There were no significant relationships between ITLorg and the nurses work shift or adequate rest/break time. The model explained 53% of the variance in ITLorg and the work environment factors were key predictors of ITLorg. The factor with the highest correlation to ITLorg was feeling personally suited for nursing work. In addition, it is important for organizational leaders to acknowledge NLRNs' efforts. This can be accomplished with money, esteem, and career opportunities; career opportunities were less important compared to money and esteem. There were significant positive correlations between ITLorg and confidence with both basic nursing skills and clinical practice.

The phenomenon of difficult NLRN transition has also been described in terms of unsuccessful occupational socialization with resultant early career burnout (Gustavsson et al., 2010). Burnout results when strongly motivated people meet an unfavorable job environment.

The syndrome of burnout is characterized by exhaustion and dysfunctional coping which lead to cynicism or disengagement. Consistent with other models, the Early Career Burnout model proposed that NLRNs feel inadequately prepared, are vulnerable, and become overwhelmed with self-doubt and failure. In a study of Swedish nurses with three years of experience, Gustavsson et al. (2010) found that symptoms were sequential in nature with exhaustion developing first; if dysfunctional coping was applied then burnout progressed further.

Focus on Transition

Godinez et al. (1999) and Boychuk-Duchscher (2009) used qualitative data to develop conceptual models that described the transition experience of NLRNs. Boychuk-Duchscher's work spanned ten years and produced two conceptual models: *The Stages of Transition Theory* (2008) and *The Transition Shock Model* (2009). The Stages of Transition Theory proposed a 12-month transitional timeline, marked by characteristic NLRN behaviors as he/she evolved through the stages of "Doing, Being and Knowing" (2008). The *Transition Shock Model* focused on the aspects of the transition that mediated the intensity and duration of the transition. The transitional challenges were characterized as knowledge, responsibilities, roles, and relationships. The NLRN's responses were categorized as physical, intellectual, emotional, and social-developmental. Nurses with poor transitions experienced disorientation, loss, confusion, and doubt and were subject to *Transition Shock*, "the most immediate, acute, and dramatic stage in the process of professional role adaptation for the NG (*new nursing graduate*)" (2009, p. 1104).

Bratt and Felzer (2012) borrowed from Boychuk-Duchscher's transition theory (2007, 2008; 2009) and Benner's (1982) novice to expert theory. Bratt's model proposed organizational commitment of a NLRN was determined by a combination of the NLRN's *personal characteristics* and *job characteristics*. Organizational commitment is present in varying levels

depending on how one identifies with and is involved with a particular organization.

Organizational commitment has three components: affective, continuance, and normative commitment. The affective component measured the degree the NLRN **wanted to stay** in an organization, as opposed to feeling obligated to stay. Bratt's model depicted the three antecedent conditions of affective commitment: personal characteristics, job characteristics and work experiences. In model testing, personal characteristics were not significant predictors of organizational commitment. Job characteristics that were significant predictors of organizational commitment included: being in the desired position and the hospital setting (nonurban/rural vs. urban), having a successful orientation (orientation objectives met); job satisfaction and job stress were also significant predictors of organizational commitment. The NLRN's perception of the quality of care provided on the unit was not predictive of organizational commitment.

Learning Theories

Three conceptual models were based in a learning theory. One study used Self-regulated Learning Theory coupled with Self-efficacy Theory; a second study used a combination of Kolb's Experiential Learning Cycle, Benner's Novice to Expert Theory and Transition management. The last model to be presented used a researcher developed model focused on team learning and individual reflection.

Kuiper (2002) incorporated two theories, Self-regulated learning (SRL) blended with assumptions from Bandura's (1977) Self-efficacy Theory. The model described SRL as a metacognitive self-evaluation process whereby learners analyze a task and set goals to complete it. Subsequently learners monitor motivation, strategy effectiveness, and movement toward goal. If adjustments are needed to meet the goal, the learners look for explanations in the environment (i.e. skills, activities, physical context, preceptor, staff and patients). These self-regulatory

processes require sufficient self-efficacy to make adjustments and achieve goals. Variations in setting, conditions, features of tasks, and social contexts (i.e. staff and preceptors) significantly impact SRL.

Kuiper (2002) analyzed reflective journals to uncover the impact of SRL on problem solving and decision making. Verbal protocol analysis found five emerging themes: “(a) Focus on the self, (b) Knowledge issues, (c) Other individuals, (d) Circumstances (clinical problems and situations) and (e) Activities” (p 84). Using present tense verbs and lower-level thinking statements the journals demonstrated NLRNs were preoccupied with situations that challenged their skills and abilities. The researcher suggested that experts faced with challenges tend to frame a situation through past experiences. The novices in this study did not possess this cognitive skill. Later journal entries showed improvements in critical thinking patterns such as cue logic and “if then” thinking. Self-evaluations that were negative in early journals became positive in later journal entries, and corresponded with perceptions of improved social support from staff and preceptors.

A third model that incorporated a learning theory was presented by Schoessler and Waldo (2006). This model combined Kolb’s Experiential Learning Cycle, Benner’s Novice to Expert with a theory of transition. The model proposed transition occurred in three sequential phases: (1) *Endings*, (2) *Neutral Zone*, and (3) *New Beginnings*.

During “Endings”, NLRNs came to terms with the end of their student experience and the beginning of their Registered Nurse (RN) career. Emotions consistent with grieving were expected during this phase (i.e. disbelief, anger, anxiety, and depression). Next, in the *Neutral Zone*, student rules no longer applied, but the NLRN had not yet learned the work rules. This resulted in frustration, anger, and disillusionment with their chosen career. The final transition to

“New Beginnings” signified the NLRN’s perceptions of competency in their role. Kolb’s Experiential Learning Cycle: Active Experimentation, Concrete Experience, Reflective Observation, and Abstract Conceptualization were overlaid on the three phase transition model. Additionally, the model used labels from Benner’s Novice to Expert framework suggesting the NLRNs begin as *Novices*, progress through *Advanced Beginners* to become *Competent* at 10-18 months.

The researchers conceived the model and then sought to validate it via an interpretative phenomenological study of data gathered from commentary during NLRN meetings. The data were evaluated from each transition phases of 0-3 months *Endings*, 4-9 months *Neutral Zone*, and 10-18 months *New Beginnings*; themes and marker events were noted.

The first phase was marked by learning tasks and procedures, fears of not meeting expectations, and mourning the loss of the student days, particularly as their ability to spend time with patients was challenged. During the “Neutral Zone” phase, NLRNs were concerned patients would lose confidence in them if they did not have ready answers. They were frustrated by lack of time to provide care, and shared symptoms of “Reality Shock”, specifically “fatigue, perceptual distortions, and moral outrage” (Schoessler & Waldo, 2006, p. 51). In the *New Beginnings* phase, NLRNs were concerned with both the intensity and the transient nature of the Nurse-patient relationship. Despite developing intense connections with patients, NLRNs’ memories failed them when these same patients were readmitted. Also, during *New Beginnings*, a new set of NLRNs would be hired. Those in *New Beginnings* would compare themselves with the newest hires to affirm their skill development and personal growth.

Although Schoessler and Waldo’s qualitative findings are interesting and in keeping with other reports of NLRN transition, framing qualitative data against one’s own preconceived

model brings potential for bias. The study is described as phenomenological, but according to Patton (2002), phenomenology is a reflection on a lived experience and therefore it cannot be done while the person is living the experience. Perhaps this study is better termed a descriptive work.

Herdrich and Lindsay (2006) presented a conceptual model of action learning within a professional practice community. The model proposed that through action and reflection knowledge is generated in a cyclic fashion. A larger oval that encompassed the individual/team knowledge cycle suggested that action and reflection learning would ultimately impact organizational development as well.

This study attempted to evaluate nurse residency program outcomes for both medical-surgical and critical care nurses from two geographically diverse cohorts. Although the study was underpowered, the model offered a comprehensive evaluation that compared baseline to 6 months and 12 month performance for both critical care and medical-surgical nurses. Outcomes of job satisfaction, competency, professional practice, critical thinking and organizational commitment were reported. To assess competency, preceptors evaluated NLRNs in the following dimensions: 1) clinical knowledge, technical skills, clinical judgment, and interpersonal skills. NLRNs also ranked their own abilities in these dimensions. Additionally NLRN rated their own competence in critical thinking, making the transition, stress, and technical skills. Although organizational development was proposed in the model, the manuscript did not mention the evaluation of this construct.

Herdrich and Lindsay (2006) suggested the NRP improved both recruitment and retention, reporting nine of ten NLRNs were retained at 12-24 months, but the pre-program retention rates were not reported. Four NLRNs demonstrated better Basic Knowledge

Assessment Test (BKAT) scores. Nurses in the medical-surgical NRP reported they were better equipped to handle stressors, but stress related to the physical work environment did not improve. In fact, stress levels were higher at 12 months related to staffing issues. The program did not impact job satisfaction scores. NLRNs in the medical-surgical program demonstrated a 55 point (41%) improvement in critical thinking scores (Watson-Glaser) while the critical care program increased by only 1.5 points. It is not clear if this represents differences in programmatic impact or significant differences in baseline scores between the two programs.

Authentic Leadership

Two conceptual models offered a targeted view of the impact of authentic leadership traits on job satisfaction and turnover intention in NLRNs. An Authentic Leader is self-aware, relationally transparent, and makes decisions based on internal moral compass after weighing all of the evidence. These models helped define the role of leadership on workplace dynamics and subsequently NLRN's job satisfaction and their ITLcp.

Giallonardo, Wong, and Iwasiw (2010) proposed that the traits of authentic leadership would impact work engagement and ultimately job satisfaction. According to the conceptual model, work engagement was evidenced by vigor, absorption, and dedication. NLRNs had higher job satisfaction and work engagement when they were trained by preceptors who possessed authentic leadership traits. NLRN work engagement had a partial mediating effect on the relationship between authentic leadership and job satisfaction.

Spence Laschinger, Wong, and Grau (2012b) evaluated the impact of authentic leadership on workplace bullying, burnout, job satisfaction, and turnover intentions. The conceptual model suggested that authentic leadership could decrease workplace bullying and thereby decreased emotional exhaustion, improving both job satisfaction and ITLcp. In a cross-

sectional survey design, NLRNs experienced less bullying and less exhaustion in the presence of authentic leadership. Job satisfaction was impacted by all three variables: authentic leadership, workplace bullying, and emotional satisfaction.

Systems Based Models

Of the three Systems-based models, two used Donabedian's *Structure, Process, and Outcome* (SPO) and one used the Systems Research Organizing Model (SROM). Donabedian's model is widely used in healthcare performance improvement work. In the model *Structure* represents contextual factors such as the tools, resources and organizational components; *Process* refers to the activities that connect patients, physicians and staff; while the *Outcomes* are the results (Lloyd, 2004). The SROM model was previously discussed.

Hatler, Stoffers, Kelly, Redding, and Carr (2011) described a SPO framework to study the impact of a dedicated transition unit (DTU). The structural components of the study included: Advanced Practice Nurse Educators, simulation lab experiences, and traditional preceptors with special training to become "Clinical Scholars". In addition to the DTU, the process interventions included the creation of a bicultural work environment, the Clinical Scholars program, and NLRN weekly progress assessment. The outcomes to be measured included NLRNs (clinical judgment, competence, communication confidence, and retention), unit staff (engagement, control over practice, subscales of the Essentials of Magnetism, and patients (satisfaction scores and quality measures).

The impact of the DTU went beyond an individual impact to improve measures of unit performance including nurse- physician relationships, autonomy, and control over practice. Staff nurse absenteeism was reduced by 19%. Patients on the DTU reported improved satisfaction with care (from 91% to 93%). The hospital also reported improved compliance with acute

myocardial infarction and congestive heart failure clinical guidelines. Unfortunately the manuscript did not report the statistical significance of any of the findings. The researchers described a detailed weekly evaluation process for each NLRN, but only anecdotal findings were reported.

Newhouse, Hoffman, Suflita, and Hairston (2007) also claimed to use the SPO model to evaluate the effect of an NRP, but the model reported no structural components such as NLRN demographic data. The *Outcomes* of the NRP were evaluated in terms of retention, sense of belonging, organizational commitment, and anticipated turnover.

Anticipated turnover was the least favorable at baseline, and progressively improved at 6 and 12 months. Actual turnover at 12 months was lower in the group who participated in the NRP, but since participation was voluntary, this difference might have been inherent in the individuals rather than a result of program participation. The 18 month and 24 month retention rates were not significantly different. The NRP group were evaluated for Sense of Belonging at baseline, 6 and 12 months, using two measures: psychological and antecedents. At 6 months sense of belonging-antecedents were improved compared to baseline, but lacking comparison measures in the control group, one cannot attribute the improvement to the NRP.

Using the SROM, Kramer et al. (2013) studied the impact of healthy work environments on safety and quality outcomes, anticipated work environment, environmental reality shock, and NLRN issues and concerns. Environmental Reality Shock was defined as the difference between the NLRN's expected and actual work environments. According to the model, the Client (NLRN) characteristics of education, prior healthcare experiences, student experience, capstone, and externship interact with both the unit characteristics and the organizational characteristics to produce the outcomes. Unit characteristics included the quality of the work environment and the

number of months of unit experience. Organizational characteristics included the type of hospital, Magnet® status, and presence of a residency program with precepted orientation.

In a study of 468 NLRNs on 191 different clinical units in 17 Magnet® hospitals, Kramer et al. (2013) found neither educational programs nor prior hospital experiences were significant predictors of NLRN expectations of the work environment; however, NLRNs without nurse-aide experience expected more support for education than their peers with no healthcare employment experience. NLRNs employed in academic health centers also had higher expectations of the professional-practice environment, particularly as it related to nurse-provider relationships, adequacy of staffing, and control over nursing practice.

When evaluating the impact of a healthy work environment on environmental reality shock, Kramer et al. (2013) found the work environment was directly correlated with environmental reality shock. The best work environments had the lowest environmental reality shock scores and an interaction effect was noted between time, the health of the work environment and environmental reality shock. Environmental reality shock was highest at 4 months and dropped significantly at 8 months. At 12 months there were no differences between environmental reality shock scores for healthy work environments and very healthy work environments. But, at 12 months, NLRNs working in very healthy work environments had doubled their baseline environmental reality shock scores. The standard deviations of the scores increased for all groups, at 12 months, but were the most pronounced for the NLRNs in the highest rated work environments. This finding suggested environmental reality shock was influenced by other unidentified factors.

Job Demands-Resources Model

The *Job Demands-Resources Model* proposed that NLRN transitional outcomes were determined by a combination of factors that fell under either job demands or job resources. Spence Laschinger, Grau, Finegan, and Wilk (2012a) proposed a conceptual model identifying workload and bullying as *demands*, and job control, supportive professional practice environment, and psychological capital as *resources*. It was proposed that the demands would lead to emotional exhaustion, poor mental health, and ultimately turnover intention. Psychological capital could have a direct impact on mental health, emotional exhaustion, work engagement, and turnover intention. Additionally, job control and a supportive professional practice environment were predicted to positively impact work engagement and turnover intention.

In the final analysis of the model, job demands were significantly related to emotional exhaustion and poor mental health. NLRN's mental health was directly related to the amount of bullying he/she was exposed to. Emotional exhaustion partially mediated the effect of bullying on mental health. Supportive professional practice environments and control over one's job made it less likely that a NLRN would intend to leave.

Professional Role Conflicts

The discussion of models associated with NLRN transition would be incomplete without a review of Kramer's seminal work in the late 1960's from which the term *Reality Shock* emerged to describe the tumultuous transition between academia and practice (1974). Kramer described a discrepancy between values learned in school (professional values) and the skills that were valued in the workplace (bureaucratic values). Conflict between professional and bureaucratic values led to *Reality Shock*, a phenomenon in which NLRNs found themselves

unprepared for the work of Nursing. Shock described the “total social, physical, and emotional response of a person to the unexpected, unwanted, or undesired and in the most severe degree the intolerable” (Kramer, 1974, pp. 3-4). Kramer found that BSNs had higher professional and lower bureaucratic values than Diploma nurses, making BSNs more susceptible to role conflict and role deprivation. The Role Deprivation score was the difference between a student’s scores for professional and bureaucratic values. Kramer claimed that the NLRN transition had a typical pattern: The honeymoon phase, shock or rejection, recovery, and resolution.

Kramer used a time-series design, with the intervention being a mild “reality shock” during the nursing curriculum, through an *Anticipatory Socialization Program*. In the program, students were exposed to the same bureaucratic and professional conflicts they would likely experience in the Registered Nurse role. Then faculty helped students work through the problems to develop their own defense mechanisms for *Reality Shock*. The experimental group, demonstrated less role deprivation as compared to the control group, indicating the students had incorporated some of the bureaucratic values into their thinking. Additionally, the experimental group stayed in their jobs and in nursing longer than the control group who had graduated the year before.

It is interesting to note that setting may have influenced the control group’s bureaucratic views because approximately one third of the students attended the University of California, Berkeley, the site of the world headline producing 1964 Free Speech Movement. For the next six years, students and administration at the university fought over the student’s rights to hold political debates and rallies on university grounds. The control group’s (1968 graduates) bureaucratic values may have been more strongly impacted by a greater exposure to the anti-establishment political climate at Berkley. This is of particular concern because the student’s

bureaucratic/professional values were a primary outcome measure. Additionally, the views of this group of students were likely more liberal compared to the more conservative sectors of the country during the late 1960's. Despite the limitations, Kramer's intervention demonstrated improved nurse retention and her work opened the door for further exploration of the NLRN transition experience.

Discussion of Models

There were many commonalities between the conceptual models discovered. Several of the conceptual models were associated with better on-boarding strategies, particularly geared to evaluate NRPs. Most models suggested that transition was a predictable linear process with an associated timeline. According to the models, the duration of transition ranged between one and three years. In several, but not all studies, the length of time spent in the RN role had a significant impact on the transitional outcome being evaluated.

This review focused on the concepts associated with transition. The way researchers conceptualize the transition period is important because variability in terminology, the transition range, and the evaluation timeline all hinder the transferability of findings to practice. For example, outcomes associated with intention to leave or stay in current position were evaluated at zero, six, and twelve months; zero, four and eight months, or up to two or even three years after graduation. If researchers are interested in addressing barriers to effective transition, it is important to know if nurses are leaving dissatisfied, or if they are leaving for other reasons, such as seeking advancement.

After analyzing the NLRN transitional models, the factors associated with NLRN transition were distilled to include personal factors, work-related factors, the person-job fit and the individual's response. Nearly all of the outcome variables were in some way connected to job

satisfaction and/or turnover intention. There were no models of NLRN transition or studies of NLRN turnover intention that considered factors outside of the individual and the organization, such as job availability. Consequently I reviewed the literature for conceptual models associated with turnover intention in the general nursing workforce.

Nursing Turnover Intention Conceptual Models

Conceptual models of turnover in the general nursing workforce have been described in two broad classes: (1) Process models focused on *how* turnover develops or (2) Content models focused on why turnover exists. Newer models of turnover tend to combine both content and process variables. Although the model constructs tended to overlap, for the purposes of analysis, the applicable models will be discussed with the context of five categories: (a) Impact of the Environment, (b) Relationships, (c) Professional role conflicts/commitment, (d) Health Promotion Model, and (e) Circular Model of Staff Turnover. See Table 4 for summaries of each model and the associated research.

Table 4

Publications featuring conceptual models associated with RN job intention

Type	Brief description of study and model
Impact of the Environment	<p>Bartram et al. (2012) used a model derived from job demands/resources model. The scope of the model was limited to the impact of high performance work systems (HPWS) as a moderator between emotional labor and burnout that leads to ITLorg. Results indicated HPWS may serve as a buffer between emotional labor, burnout and ultimately intention to leave.</p> <p>Jourdain and Chênevert (2010) used Job demands-resources model to investigate ITLprof . The most important determinants of emotional exhaustion, depersonalization, and subsequent burnout were job demands. Emotional exhaustion and depersonalization were correlated with psychosomatic complaints and professional commitment. Depersonalization and subsequent disengagement tends to erode professional commitment.</p>

(continued)

Table 4: Publications featuring conceptual models associated with RN job intention (continued)

Type	Brief description of study and model
Impact of the Environment	<p>Leveck and Jones (1996) adapted Hinshaw and Atwood's Anticipated Turnover Model by adding management style and outcomes of quality of care. Hinshaw and Atwood developed a five stage model: 1) initial expectations of tenure and individual mobility factors; 2) group cohesion, job stress, control over nursing practice, and autonomy; 3) job satisfaction, both organizational and professional. 4) turnover intention and 5) actual turnover. Research demonstrated that when nurses liked their bosses management style they reported better group cohesion, organizational job satisfaction and retention; Job stress negatively impacted professional job satisfaction and quality of care.</p> <p>Liou (2009) used Theory of Reasoned Action and Organizational Commitment Model to regress personal characteristics, work experiences, and perceived job characteristics on organizational commitment and intention to leave. Liou found that the work environment (including group attitudes, personal importance, organizational characteristics and dependability, job challenge) along with perceived job characteristics (job stress, challenge, variety, pay and benefits, training and education, autonomy, task identify and conflict, optional interaction and relationships and work environment) impacted organizational commitment and intent to leave.</p> <p>Taunton et al. (2004) presented a conceptual framework that aligned with the NDNQI®-Adapted Index of Work Satisfaction. This model combined antecedents (unit type, workload, age, experience, and education) with defining characteristics (general satisfaction with the work and its components) to result in consequences of commitment, anticipated turnover, and patient outcomes.</p>
Professional role identity	<p>Gambino (2010) used work commitment theories to study the nurses' commitment to the organization as well as to the profession. Results indicated intent to stay was most strongly linked to normative commitment and age.</p> <p>Simon et al. (2010) analyzed turnover models and concluded that variables associated with turnover could be classified in six domains. They analyzed the impact of each domain on ITLprof and ITLorg. Four variables were linked to ITLorg: age, leadership quality, burnout, and city size. Models for ITLprof explained more of the variance than models for ITLorg. Both ITLprof and ITL org were associated with age, professional commitment and job satisfaction. (continued)</p>

Table 4: Publications featuring conceptual models associated with RN job intention (continued)

Type	Brief description of study and model
Relationships	Brunetto et al. (2013) Used Social Exchange Theory to examine relationships between nurses and their supervisors, teamwork, well-being, affective commitment and turnover intention. Results demonstrated each of the independent variables significantly impacted turnover intention, underscoring the importance of satisfying relationships between nurses and supervisor and between nurses and the unit-based team.
Health Promotion	Palumbo et al. (2010) used Pender's Health Promotion Model (HPM). According to the HPM, individuals filter personal factors and psychological factors through situational influences (i.e. the work environment) to commit to action, such as a health promoting behavior. The researchers studied the impact of age, gender, work role, and practice setting on the RN's perceived general and emotional health, the RN's perceived health and safety practices of their employers and ITLorg. The nurses were analyzed in two age related cohorts, those over 55 and those under 55 years of age. Of the younger cohort, those who reported better general health were more likely to intend to leave. Those who reported better emotional health had less intention to leave. When nurses perceived less effective health and safety practices, they were more likely to intend to leave.

Models Focused on Impact of the Environment

Five models were strongly focused on environmental variables. Of all of the models discovered, the modified Anticipated Turnover Model provided the most inclusive model of job intention. Leveck and Jones (1996) adapted Hinshaw and Atwood's five stage model. In the original model, the first stage accounted for a nurse's initial expectation of tenure in the position and individual mobility factors. In the second stage group cohesion, control over nursing practice, autonomy, and job stress were incorporated. The third stage considered job satisfaction from both a professional and organizational perspective. The fourth stage of the model looked at turnover intention and the fifth stage represented actual turnover. In the adapted model (Leveck & Jones, 1996) the first stage also included management style; group cohesion and job stress

were added to stage two; stage three included both organizational and professional job satisfaction and the final stage incorporated quality of care and staff retention.

Liou (2009) used the Theory of Reasoned Action and Organizational Commitment Model to explain the relationship between the nurse's personal characteristics, their work experiences, and their perceptions of the workplace on ITLorg. In a similar framework, the Job Demands-Resources Model provided theoretical guidance for two of the studies (Bartram, Casimir, Djurkovic, Leggat, & Stanton, 2012; Jourdain & Chênevert, 2010). Details of the Job Demands-Resource Model were previously presented in this manuscript. See Findings section, Table 2, page 21. In a separate study using a variation of the Job Demands Resource Model, Jourdain and Chênevert (2010) reinforced the notion that the demands of the job result in psychosomatic symptoms leading to emotional exhaustion, depersonalization, and subsequent burnout. If the chain continues, then the nurse's professional commitment is eroded. Bartram et al. (2012) used the Job Demands-Resources Model to demonstrate how high performance work systems (HPWS) serve to moderate the relationship between emotional labor and burnout leading to ITLorg. *Emotional labor* was defined as "efforts made to modulate the expression of one's emotions to meet the expectations of employers or customers" (p. 1568). Results indicated HPWS may serve as a buffer between emotional labor, burnout, and ultimately ITLorg.

A narrowly focused conceptual framework was presented by Taunton et al. (2004) that aligned with the NDNQI-Adapted Index of Work Satisfaction Survey. This model acknowledged the relationships between antecedent factors (unit type, workload, age, experience, and education) and other defining characteristics such as general satisfaction with work and work components (task, Nurse/nurse interaction, Nurse/MD interaction, autonomy, organizational

policies re decision making, professional status and pay. There were three outcome variables (consequences) in this model: commitment, anticipated turnover, and patient outcomes.

Models Focused on Professional Role Identity

Three models centered on the nurse's professional role identity. Looking beyond why nurses wish to leave their jobs, Simon et al. (2010) delineated the variables associated with ITLprof from those variables associated with ITLorg. Variables that were common to ITLprof and ITLorg were professional commitment, job satisfaction, burnout, and age. Nurses intended to leave their organization based on their age, the quality of the leadership, burnout, and city size. City size has historically been used as a proxy for job availability, however in this study smaller city sizes were associated with increased ITLorg. It is interesting that the models associated with ITLprof explained more variance than the models associated with ITLorg, suggesting that by increasing professional commitment, organizational turnover might be positively influenced.

Focusing on work commitment theories, Gambino (2010) reported that age and normative commitment were the strongest predictors of job intention. Nurses nearing retirement were more likely to stay in their positions. Normative commitment was defined as "the internalization of obligation and loyalty, which are the result of financial and non-monetary investments made by an organization on behalf of the employee" (p. 2534). For each 1 point increase on the normative commitment scale or one-point increase in age, the odds of remaining with an employer until retirement increased by 1.1%. These findings suggest that providing financial rewards up front retains nurses, but paying people to stay in a position seems to be an artificial, short-term solution.

To understand the impact of role discrepancy and ITLorg, Takase, Maude, and Manias (2006) used the *Person-Environment Fit Theory*. Role discrepancy was defined as "a misfit

between nurses' role conception and their perception of the actual roles" (p. 1073). Higher role discrepancy scores correlated with more ITLorg. This supports the importance of the person-environment fit and more specifically the notion that role discrepancy causes nurses to seek out other work environments where they anticipate a better fit. When nurses perceived they were participating in administrative and clinical decision making, and providing patient education, they had less role discrepancy. Takase and colleagues suggested future research examining the relationship between job satisfaction and role discrepancy.

Relationship Based Model

Interestingly, the majority of the models of NLRN transition were focused on relationships and socialization, but only one relationship based model was discovered in this review of the general nursing workforce turnover literature. Relationship building may not be prioritized in the general workforce retention strategies relative to the strategies for NLRNs retention, none the less, Brunetto et al. (2013) reported that the relationships nurses had with each other and their supervisors, as well as their teamwork perceptions and affective commitment were significantly related to turnover. Affective commitment implied a sense of emotional engagement achieved through identifying with the workplace. According to the Social Exchange Theory, when all nurses are satisfied with their supervisory and collegial relationships they would likely be sharing time, resources, information, knowledge, skills, and support. Working together during busy times would reduce burden and provide a sense of well-being while improving commitment to the agency. Although only one model focused on the social and relationship construct(s), social factors were included in other turnover models as a feature of high performing work environments (Bartram et al., 2012), group cohesion (Leveck and Jones, 1996), and group attitudes (Liou, 2009).

Health Promotion Theory

Palumbo et al. (2010) focused on potential personal and workplace antecedents to general and emotional health and nurses' job intentions. Factors of age, gender, work role, and practice setting were regressed with perceived emotional health as well as perceived general health. For nurses under the age of 55, as perceptions of general health went up, so did intention to leave. However those who reported better emotional health had less intention to leave. Perceived emotional health improved with increasing age, while perceived general health remained constant. When nurses felt the agency was vested in health and safety practices they were less likely to intend to leave.

Cohen-Mansfield's Model of Staff Turnover

A conceptual model for intention to leave and turnover among long-term care (LTC) staff was presented by Cohen-Mansfield (1997). Although proposed for use in LTC, the model was based in literature from acute care (Hinshaw & Atwood, 1982; Price & Mueller, 1981; Seybolt, Pavett, & Walker, 1978). The model linked turnover intention with the nurse's response to the person-job fit. The person-job fit is driven by both personal factors and work related factors. It is the individual's response to the person-job fit that drives the decision to leave, however environmental factors, specifically the job market also impact the decision. The circular design of the model reflected the tendency for turnover to beget turnover. When one nurse leaves the workload for the remaining staff is affected, making it more likely for others to decide to leave.

Summary of Nursing Workforce Turnover Intention Models

As in the NLRN models, aspects of the work environment were important to job satisfaction and job intention. Favorable work environments included better access to information resources, support, opportunities to learn and develop (Bartram et al., 2012), pay and

benefits (Liou, 2009), as well as offering financial incentives to stay in advance (Gambino, 2010). In fact, dissatisfaction with pay and benefits may be even more important during times of recession. The ethical climate of the hospital and the quality of management were also important (Chan, Tam, Lung, Wong, & Chau, 2013).

Forrier, Sels, and Stynen (2009) presented a general conceptual model of career mobility. Looking outside the nursing literature provided a broader perspective of work-role transition. Individual factors that influence transition were contained within the construct of *movement capital*. *Movement capital* was defined as “encompassing the individual skills, knowledge, competencies, and attitudes influencing an individual’s career mobility opportunities” (p. 742). Opportunities for personal and professional development are important to workers wishing to maintain or enhance their *movement capital*.

The model described by Forrier et al. (2009) also incorporated risks associated with changing jobs, in terms of *ease of movement* and *willingness to move*. Clearly employment opportunities are related to factors outside one’s skills, knowledge, competencies, and attitudes because the labor market directly influences mobility opportunities. There is interplay between the constructs of risks, opportunities, and *movement capital* that would be different for NLRNs compared to the general nursing workforce. The influence of the job market has not been captured by many of the Nursing models of job intention/turnover intention.

Simon et al. (2010) summarized the variables associated with nursing workforce turnover in six major categories:

- Individual factors including demographics and conflicts between work and family life conflicts.
- Health-related factors such as burnout.

- Social factors within the work environment such as leadership qualities and relationships among the nurses.
- Variables associated with the work content including emotional and physical demands and resultant stress.
- Work organization factors including the nurse's ability to influence situations, role conflict, professional development opportunities, and demands.
- Variables associated with the labor market (p. 617).

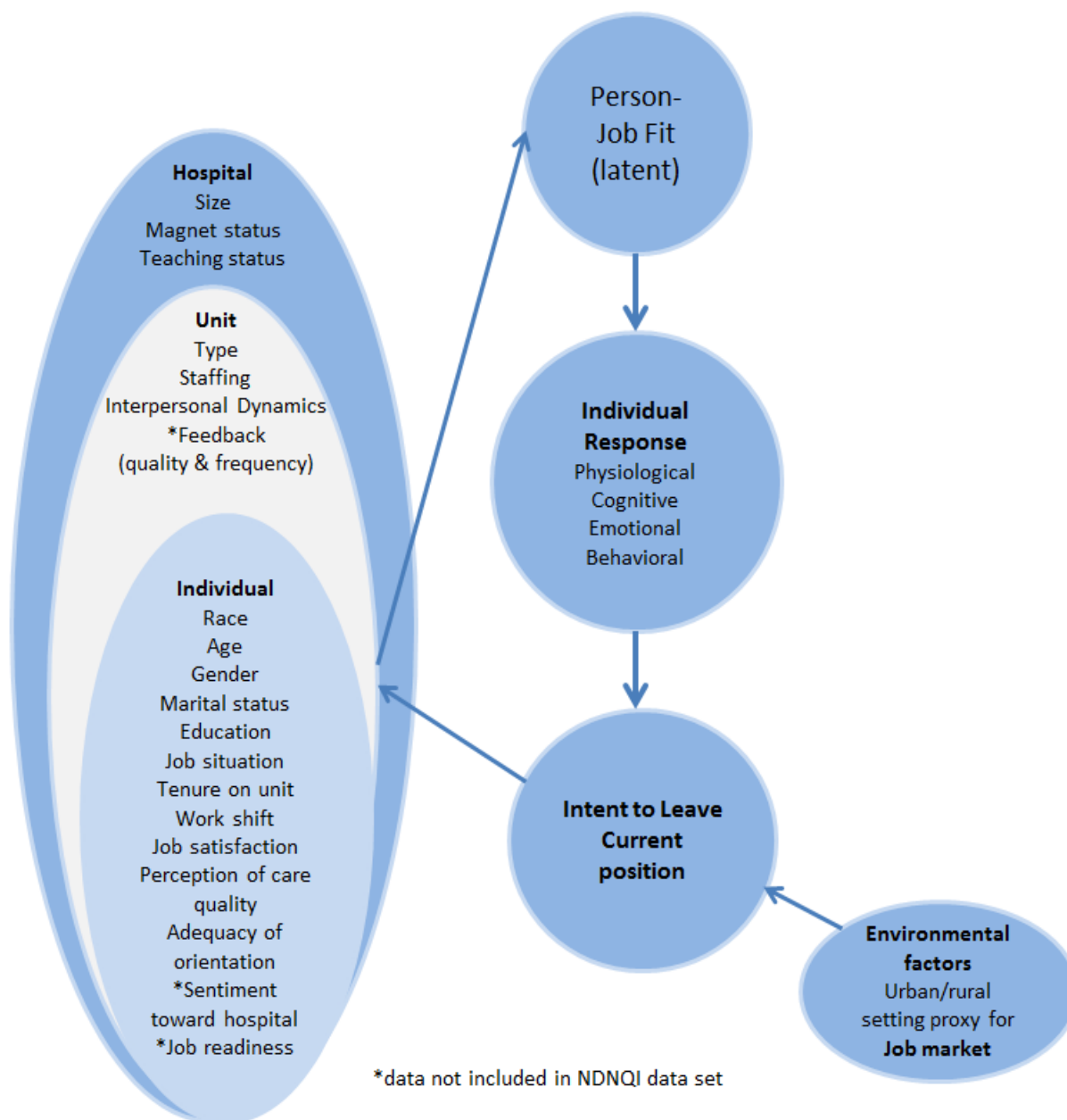
Under the assumptions of the Person-Environment Fit Theory, the relationship between the nurse's needs and the job environment determine the nurse's occupational behaviors, including their occupational performance, job satisfaction, and job intention. When there is perceived miss-fit then nurses will seek a work environment with a better fit (Takase et al., 2006).

Theoretical Model for NLRN Turnover Intention

Cohen-Mansfield's Model of Staff Turnover provides a comprehensive lens from which to view the complex phenomenon of NLRN turnover intention. This model had the potential to (a) incorporate characteristics of the individual, the unit, and the hospital that influence the Person-job fit, (b) consider the complexity of the individual's responses (i.e. physiological, cognitive, emotional, and behavioral) that have been repetitive themes in the NLRN transition literature, (c) incorporate the environmental factors that influence both the ease and risk of movement, and (d) capture the cyclic phenomenon of turnover perpetuating turnover communicated by the circular nature of the model. A version of the model is depicted in Figure 1. In the next section the concepts and corresponding variables of NLRN transition will be discussed within the context of the model.

Figure 2

Cohen-Manfield's Model of Staff Turnover (adapted)



Effects of Structural and Contextual Factors

Individual Factors

Intent to leave is impacted by factors occurring both before and after the NLRN's employment. Some before employment factors are not modifiable including race, age, gender, and marital status. Other individual characteristics impacting transition are potentially modifiable such as sentiment toward the hospital, knowledge, education, basic nursing skills, and clinical abilities.

Job readiness. NLRN readiness for the job has been identified as an important transitional factor, but it is not clear how job readiness impacts job intention. The Institute of Medicine, (2010) has linked better preparation of NLRNs to higher quality patient care and to retention rates. However, Tominaga and Miki (2011) provided quantitative assessments of NLRN job readiness, indicating nurses who reported higher scores in basic nursing skills and abilities had higher ITLorg. This could mean NLRNs who rate their skills more favorably perceive a relative increase in *movement capital* and thus more ease of movement. Other researchers demonstrated NLRNs are very dissatisfied with their abilities to abilities to accomplish "Real Nurse Work" (Godinez et al., p. 100), particularly their ability to perform technical and physical skills (Boychuk-Duchscher, 2007, 2009). In a model of early burnout, Gustavsson et al. (2010) said sources of burnout were "imbedded in the crisis of competence and a quest for respect that urged the novice to prove his or her worth or potential" (page 865). Closely associated with competence, NLRNs displayed a lack of confidence in their own skills, including their ability to critically think and reason (Kantar, 2012).

Nurse residency programs (NRP) have aligned with Duchscher's theoretical framework, Bratt and Felzer (2012) suggested that content in early nurse residency program sessions should be heavily focused on skills and clinical topics because the NLRNs need to be involved in "doing". Along those lines, NLRNs perceived delegation and time management as "soft skills" and wanted them later in the curriculum.

Previous healthcare experience. It is unclear if previous healthcare experience supports favorable transitions. Kramer et al. (2013) found no differences in environmental reality shock scores between those with and without prior healthcare experience. Phillips, Esterman, Smith, and Kenny (2013) found that NLRNs who were employed during their final year of nursing school experienced better transitions than those who had not worked during school. There were no statistically significant differences between those employed in healthcare compared to those employed in other settings, for example retail. Nurses who worked outside of health care reported higher levels of customer focus while those working in healthcare reported higher levels of clinical skills. All of the students who worked during their last year of school said that work helped them develop teamwork and communication skills.

Work related Factors

Some work related factors that impact NLRN transition are modifiable while others are non-modifiable. Non-modifiable factors related to the work environment include factors such as hospital location (rural/urban) and size. Conversely, modifiable work-related factors include the health of the work environment, job demands, resources, supportive professional practice environment with ample learning opportunities, and an adequate orientation. Compared to individual factors, institutional factors seem to have the greatest bearing on successful NLRN

transition (Phillips et al., 2013). Although the hospital location (rural/urban) is a non-modifiable factor, the size of the city has been used as a proxy for job availability (Simon et al., 2010).

Work environment barriers to professional role embodiment. A supportive professional practice environment may enable successful professional role embodiment. Embodiment is the process of expressing, personifying, or exemplifying in concrete form (Dictionary.com, 2013). NLRNs experience conflict as they attempt to embody the professional role as a nurse (Kramer, 1974). Crowe (1994) described role embodiment as a moral and symbolic transformation from lay person into a professional. To embody the professional role, individuals must first possess the requisite skills and knowledge of the profession.

While the NLRN works to acquire the knowledge and skills of the profession, they experience additional barriers to professional role embodiment when they encounter an overwhelming workplace. These demands challenge the NLRN's ability to provide the cares that they consider fundamental to the role, such as spending time with patients (Boychuk-Duchscher, 2008; Bratt & Felzer, 2012; Boychuk-Duchscher & Myrick, 2008; Godinez et al., 1999; Schoessler & Waldo, 2006). Being overwhelmed by the workload, NLRNs feel they must choose between effective and efficient care.

Kramer (1974) originally attributed the NLRN's conflict to the inability to adjust to a nursing role that did not fit their academic preparation. Godinez et al. (1999) also reported that NLRNs were concerned with "Real Nurse Work" (p. 100). Boychuk-Duchscher's findings aligned with Godinez and Kramer as she described the first three months as the "Doing" phase where NLRNs were concerned with "learning, performing, concealing, adjusting and accommodating" (2008, p. 443) and she also reported that NLRNs joined the workforce with idealistic expectations, felt an "oppressively hierarchical work structure" and were naïve to the

organizational structure (2009, p. 1107). Bratt's model also suggested the importance of role socialization through academic course work, precepted experiences, and/or prior healthcare experience.

In fact, Kramer's diagnosis of "*Reality Shock*" in 1972 continues to ring true in the current literature. A recent study of transition provided support for Kramer's *Honeymoon Period* given that Nurse Residency Program outcome measures were higher at baseline, dipped at 4-6 months and recovered at 12 months (Goode, Lynn, McElroy, Bednash, & Murray, 2013). The NLRN experiences a type of grief as they transition between the student and the RN roles (Boychuk-Duchscher, 2009; Kramer et al., 2013; Schoessler & Waldo, 2006; Spence Laschinger et al., 2012a).

Socialization is critical to successful transition. Interpersonal dynamics and social interactions were important features of all NLRN models, suggesting that NLRNs must learn both relational dynamics and unit politics. It was important to be liked by your colleagues and according to Godinez (1999), while the NLRNs were eager and willing, they craved guidance, feedback, and nurturing. Concerns related to interpersonal dynamics were second only to the concerns about "Real nurse work" (p. 100). Social interactions included interactions with patients, preceptors and the unit-based dynamics encompassed by the theme "We like this person" (Godinez et al., 1999, p. 106).

Herdrich and Lindsay (2006) discussed importance of socialization into nursing, and shared anecdotal evidence that NRPs aided in socialization by supporting NLRNs, but they did not study socialization constructs as outcomes. Socio-cultural and socio-political conditions in the practice environment may marginalize the NLRN (Boychuk-Duchscher & Cowin, 2004). NLRNs view themselves as different, and this sense of "betweenness" was apparent in several of

the models of NLRN transition (Boychuk-Duchscher, 2009; Kramer, 1974). Authentic leadership behaviors seemed to control an extreme aspect of negative socialization behaviors, which is work related bullying (Spence Laschinger, et al., 2012b).

Feedback component. Beyond formal mentoring, the quality and frequency of feedback may be an important determinant of NLRN transition outcomes. *The Transition Shock Model* suggested that limited feedback on performance was responsible for further disorientation and doubt which ultimately led to transition shock. As previously mentioned, Godinez (1999) found NLRNs needed guidance and feedback. Boychuk-Duchscher (2008; 2009) found that lack of formal mentoring resulted in NLRN mistrust of co-workers. Driven by a need to belong, NLRNs went to great lengths to disguise and conceal their emotions and insecurities from colleagues. Hatler and colleagues (2011) described a transition program that incorporated weekly feedback, but the evaluative data were not included in the publication.

Person-Job Fit

It is important for the NLRN to feel as if they fit within their environment (Scott, et al., 2008) and within Nursing. Tominaga, and Miki (2011) found being suited to nursing work was one of the top predictors of the NLRN's intention to stay in a position. This factor was second only to the NLRN's general health and fatigue levels. Additionally, it was important for the NLRNs to believe their efforts were being adequately rewarded and to feel as if they fit within their job environment. NLRNs were motivated to leave when they perceived an imbalance between their effort and the organization's rewards. The construct of person-job fit also includes working in one's desired position.

Individual Response

Physical and emotional symptoms. Many researchers found the NLRN transition experience to be filled with overwhelming physical and emotional symptoms. “The first 1-4 months were characterized by an overwhelming stress that consumed all of the NLRN’s energy and was at times physically and psychologically debilitating” (Boychuk-Duchscher, 2009, p. 1106). Physical symptoms included excessive fatigue and illness (Kramer, 1974) and Tominaga and Miki (2011) found the NLRNs general health to be the most significant predictor of their intention to leave. Godinez said feelings were important, but extreme stress and physical symptoms were not described in either Godinez’s or Bratt’s models. Others suggested that emotional exhaustion resulted from workload demands and/or workplace bullying (Spence Laschinger, Grau, et al., 2012a; Spence Laschinger, Wong, et al., 2012b).

Kramer (1974) suggested that the experience of *reality shock* was not connected with the NLRN’s life outside of their work responsibilities, but according to the *Stages of Transition Theory* and *Transition Shock Model* the concerns associated with the transition included adjustments with life roles outside of their professional role adjustment, including work-life balance. In the model proposed by Godinez preceptor guidance included personal advice. Although stress was a frequent theme from qualitative research, only Gustavsson et al. (2010) in the study of the sequential development of career burnout provided a quantitative analysis of stress in the context of NLRN transition. Considering the most current research, it is likely that pressures from home contribute to the levels of NLRN stress.

Gaps in the Literature

Studies of job intention and turnover in acute care have been reported for both the NLRN and the global RN workforce. Many RN retention strategies have been recommended, but it is

likely the retention strategies for the NLRN would be different. In fact, in some studies of nurse retention, NLRNs have been excluded from the sample so not to introduce bias (Cavanaugh & Coffin, 1992) and tenure has been used as a control variable linked to age (Leveck & Jones, 1996).

Finding an Inclusive Model for NLRN Transition

Although NLRN is a topic that is frequently studied and reported in the literature, and several models of transition have been proposed, in terms of the conceptual models, the following gaps remain:

The model proposed by Scott and colleagues (2008) suggested *Anticipatory Socialization* factors were coupled with *Organizational Socialization* to produce *Socialization Outcomes*. One of the Socialization Outcomes was job intention. Although socialization is important to the NLRN, viewing job intention strictly through the lens of socialization seems restrictive. The decision to leave one's position likely incorporates the Person-Job fit and the NLRN's response to that fit. In addition, most nurses consider the job market and their own marketability before making a decision to leave. During the transition period, NLRNs are developing the knowledge and skills of the profession, so their movement capital would be lower compared to experienced nurses.

Bratt (2012) proposed a similar model suggesting that *Personal Characteristics*, *Job Characteristics*, and *Work Experience* combined to achieve *Organizational Commitment*. Although Organizational Commitment has been viewed as an antecedent to intention to leave that was perhaps more stable over time than job satisfaction, the relationship between Organizational Commitment and Job Intention needs to be validated in a cohort of nurses who have just been hired. How valid is a baseline measure of Organizational Commitment upon hire?

The Systems Research Organizing Model (SROM) provided a dynamic framework to view a complicated systems-based issue such as NLRN transition. The four interacting constructs of *Client*, *Context*, *Action Focus*, and *Outcomes* provide an appropriately abstract canvas for Nursing research, however the feedback loops between each construct make this model less parsimonious for a secondary data analysis. A comprehensive and generalizable model is needed to incorporate what is known about NLRN transition into a NLRNs turnover intention model. Qualitative studies of the transition of the professional nurse from academia to practice has provided a rich description of the phenomenon, but it is important to confirm the variables of significance and to understand the relative importance of each variable in the equation of NLRN job satisfaction and turnover intention. Moreover, when selecting a model for secondary data analysis, aligning the conceptual models of the secondary analysis with the model of the original study serves to optimize internal and external validity (Magee, Lee, Giuliano, & Munro, 2006).

The Variables of Concern

This section offers a summary of what is known about individual characteristics and organizational characteristics relative to NLRN transition.

Individual characteristics. Marital status, knowledge and intellectual capacity, and sentiment toward the hospital have been significantly associated with NLRN transition outcomes. Studies have also suggested that race is significant, but because the nursing workforce is predominately Caucasian, it is difficult to achieve appropriate power to examine the impact of race on transition outcomes. The variables of job readiness, job satisfaction, job control, eagerness, presence of psychological capital and organizational skills have been significantly associated with transitional outcomes.

The evidence has not demonstrated significant relationships between holding a prior degree, grade point average, experiencing a role socialization course, having more preceptor led experiences, prior healthcare experiences or family culture and transitional outcomes.

The relationships between the following variables and transitional outcomes have performed inconsistently: age, gender, time in current job, education, basic nursing skills and abilities, and clinical expertise. Given that the nursing workforce is predominately female, appropriately powered studies to determine the impact of maleness is also a challenge.

Organizational characteristics. The location of the hospital has been significantly associated with transitional outcomes, but the size, type (academic verses community), or number of nurses employed have not. It seems that healthy work environments, staffing, having opportunities to learn, and being rewarded for effort are important. Findings were ambivalent when transitional outcomes were compared to the type of unit and being in the desired position. No relationships were noted between the shift, having rest/break time, and the quality of nursing care. The social capacity of the unit-based team impacts transitional outcomes as does the quality of the transitional program for NLRNs. The length of the program did not necessarily impact transitional outcomes. Quality preceptors are important, while the number of preceptors may or may not be significant. Much of the literature reported learning design as an influential variable, but because there were no comparative programs, it is impossible to know if the program style was responsible for the outcomes.

Summary

In a systematic review of the literature 18 conceptual models describing the transition of new nurses into the general workforce were discussed. The discussion included a description of each model and the variables of concern in each model were listed and analyzed. There were

some variables that were consistently related to NLRN transition outcomes, some did not correlate with transition outcomes, and some variables performed inconsistently across the studies. Finding no comprehensive model to guide this study, attention was turned to the general nursing turnover literature for an appropriate framework. A comprehensive theoretical model was presented. The model captured the relationships between Individual Variables and Work Related Variables that have been linked to NLRN transitional outcomes, including turnover intention. However, some variables such as sentiment towards hospital, job readiness, and feedback quality/quantity were not available in the NDNQI® data set. For the purposes of this study, a working conceptual model (Figure 1) was presented to represent the nested relationship of individual, unit-based and hospital-based variables important to NLRN transition and available within the data set. The working model is in keeping with the NDNQI® Conceptual Framework proposed by Tauton et al. (2004) that was discussed earlier in Chapter Two. Taunton presented antecedents and defining characteristics that drove job intention and job commitment. The next chapter describes the study methodology.

Chapter Three

Methods

The purpose of this study was to develop and test a comprehensive model of new nurse intent to leave acute care hospitals using existing data from the National Database of Nursing Quality IndicatorsTM (NDNQI®). In Chapter Three, I describe the methodology used to examine the relationship between selected individual factors (race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation), and unit-based factors (unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration) controlling for selected hospital characteristics (Magnet® status, teaching status and size) on new nurses' intention to leave their current positions (ITLcp) in acute care facilities.

Research Design

This study was a descriptive secondary data analysis of existing data to identify factors that impact a new nurse's intent to leave their current position (ITLcp). The data were part of a larger set of NDNQI® data concerning the RN workforce and the practice environment from the 2012 RN surveys. The year 2012 was selected because this was the last year for which full data were available. A descriptive correlational design was used. Three-level hierarchical logistic regression using Statistical Analysis System (SAS) GLIMMEX procedure was performed to test the correlates of intention to leave including the individual factors of race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation; the unit-based factors of unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing

administration while controlling for the third level, hospital characteristics of Magnet® status, teaching status, and size.

Secondary Data Analysis

Secondary analyses of large data sets present opportunities to study high impact research questions in ways that are relatively inexpensive and efficient. Because a secondary data analysis is a descriptive, correlational study, correlations cannot be interpreted as evidence for causation and this represents an inherent weakness in the design (Leske, 1990). Most secondary data analyses use the data differently than was intended in the primary collection in order to answer a new research question, also a design weakness (Doolan & Froelicher, 2009). However the quality of this study is strengthened by the fact the data were originally collected for the purpose of studying all nurses' job intention, among other things. By studying a subset of the data I hoped to glean a better understanding of the factors associated with turnover intention of NLRNs. I conducted a secondary analysis of data from the National Database of Nursing Quality Indicators™ (NDNQI®) because it offered a comprehensive data set that was suitable for answering the research question:

Are there relationships between selected individual factors (race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation), and unit-based factors (unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration) on new nurses' intention to leave their current positions in acute care hospitals, when controlling for selected hospital characteristics (Magnet® status, teaching status and size)? The dependent variable, ITLcp, as well as the nineteen independent variables were obtained from the 2012 NDNQI® RN Survey with Job Satisfaction Scales. The survey included RN Work Context and

RN Characteristics. Data from the three surveys provided quantifiable data to validate variables of significance to NLRN job intention related to individual characteristics, unit-based characteristics, and hospital characteristics. This large data set was particularly well suited to define the impact of race and gender on ITLcp because of the large number of diverse survey participants across the United States. I analyzed the primary data source according to Leske's (1990) recommendations to promote reliability and validity of the findings.

Primary Purpose of NDNQI® Data Collection and Analysis

The NDNQI® is a proprietary database of the American Nurses Association and was established to help registered nurses improve the quality and safety of patient care through comparative data analysis. In addition to patient outcomes, the NDNQI® collects data concerning the nurse's perception of the practice environment and RN job satisfaction to examine the relationship between nursing factors and patient outcomes. As of November, 2013, 1941 hospitals in 50 states and Washington DC voluntarily participated in the NDNQI® survey process (ANA, 2012).

NDNQI® Procedures for Data Collection/Acquisition

The NDNQI® RN survey data on job satisfaction and nursing work environment are collected annually from nurses who provide direct patient care at the unit level where nursing occurs. Data are collected on-line, and each hospital selects one of the eligible survey months to collect the data (April, May, June, August, September, or October) and which RN survey instruments to use. All hospitals use *RN Characteristics* and *Work Context*. In addition, Hospital Survey Coordinators at member hospitals select one of these three RN Survey Instruments: *RN Survey with Practice Environment Scale*, *the RN Survey with Job Satisfaction Scales*, and *the RN Survey with Job Satisfaction Scales-Short Form*. The data are collected over three weeks during

the data collection period. Data collection is not limited to inpatient units, rather, all nursing units may participate.

Survey eligible nurses are: (a) Either Registered Nurses (RNs) or advance practice nurses, who have (b) been employed a minimum of 3 months on the unit and (c) spend at least 50% of their time in direct patient care activities (ANA, 2012). Unit-based response rates are available, but the response rates for the subset of NLRNs are not. All data are taken from survey instruments and a complete data dictionary is available with precise conceptual definitions, alleviating concerns related to measurement bias. The data are provided as raw scores. The author has a copy of the survey tool.

What Data Were Collected?

This secondary data analysis focused on the RN Characteristics and Work Context and The RN Survey with Job Satisfaction Scale. These data were particularly well suited for the investigation of the NLRN work experience because the tool measured job satisfaction at the unit level. Shifting the focus of each item from the individual to the unit, allowed a unique view of the unit-based culture in terms of the constructs represented in the each of the subscales (tasks, nurse-nurse interaction, nurse-physician interaction, decision-making, autonomy, professional status, pay, professional development, supportive nursing management, nursing administration, and job enjoyment). Through this tool, essentially, the RN became the reporter of the unit-based work environment. It was particularly helpful to capture the NLRN's perception of the unit-based culture relative to job satisfiers because the NLRN's ability to fit into the culture is an important aspect of their transition (Boychuk-Duchscher, 2009; Kramer et al., 2013).

A working conceptual framework was developed using Taunton et al.'s (2004) Conceptual Framework for the NDNQI® Adapted Index of Work Satisfaction. The framework

was selected because of its parsimony and alignment with the NDNQI® Adapted Index of Work Satisfaction. Taunton's model, designed to explain commitment, turnover, and patient outcomes in the general RN workforce proposed that antecedents (unit type, workload, age, experience, and education) and defining characteristics (general satisfaction with work, satisfaction with work components) resulted in commitment, anticipated turnover, patient outcomes and other unmeasured consequences. In Taunton's model, the defining characteristics centered on the components of work related satisfaction. For this study, some of the work related factors were classified as unit-based: unit type, staffing, and four items from the RN workgroup job satisfaction scale, namely nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration. These four items served as a proxy measure of interpersonal dynamics on the nursing unit. For the study of the NLRN population, antecedents variables of age, experience (tenure on unit) and education were included as individual factors. Gender, job situation, work shift, individual job satisfaction, perception of quality of care and adequacy of orientation were added because these concepts have been associated with new nurse transitional outcomes. The framework was also modified to capture the dependent or 'nested' nature of the Individual, Unit, and Hospital variables. See Figure 1, page 10.

Sample-Inclusion and Exclusion Criteria. For this study, the researcher identified the variables of interest and established the sampling plan based on the review of literature described in Chapter Two. The sample included RN survey data from NLRNs in units that participated in the 2012 RN survey. The researcher chose to conceptually define "newly licensed registered nurse" as one who has not yet reached a level of competence. According to Benner's model of nursing development, it takes most nurses approximately two years to reach competence. Accordingly, the sample was limited based on the operational definition, of NLRN, a nurse with

less than or equal to two years of experience. The surveys for secondary data analysis were extracted from the 2012 data base using the following steps:

1. Include all surveys from hospitals that submitted *The RN survey with Job Satisfaction Scales*.
2. Select RNs working in US hospitals.
3. Limit to RNs who have been working in the US for less than or equal to two years.
4. Limit to RNs who received their basic RN education in the US.

To support the notion of “unit-level” data, at the time the subset of data was compiled from the parent data set, if less than five individuals reported from any given unit, these data were suppressed.

For each individual NLRN survey, the corresponding unit and hospital data were included. The following staffing data were extracted for the month prior to the survey data collection: RN hours per patient day (HPPD) + Licensed Practical Nurse (LPN) HPPD + Nursing Assistant (NA) HPPD. If data are missing for the month prior to the survey, I planned to use data from the most recent month, however staffing data for the appropriate month were available in all instances.

Power Analysis. For this hierarchical regression analysis the study was designed for 80% power and the cutoff for determining statistical significance was established at $p = .05$. The study was powered to detect a medium effect. There were 19 independent variables in the study. For each categorical variable, every categorical response was counted as a predictor, resulting in 56 predictors for this study. Using the rule of ten events per variable for determining logistic regression sample size, $10 \times$ the number of variables suggested a sample of 560 who planned to

leave was required (Vittinghoff & McCulloch, 2007). In the study sample (N=8343), 2652 NLRNs planned to leave their current position, indicating the study was well powered.

Model Variables

The outcome variable for this study is intent to leave current position (ITLcp) was based on the survey question, “What are your job plans for the next year?” The options were (a) stay in my current position, (b) stay in direct patient care but in another unit in this hospital (c) stay in direct patient care but outside this hospital (d) leave direct patient care but stay in the nursing profession, (e) leave the nursing profession for another career, (f) retire. The survey responses to the dependent variable question were re-coded so that 0 represented response a: “stay in my current position” and all other responses (b-f) were coded as 1 “intent to leave”. The recoding captured the dichotomous nature of the concept and addressed the research question/concern that nurses were leaving their current positions before achieving competency.

Predictor variables were selected based on the review of the literature. Individual factors of race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation were tested because these factors have been identified as significant predictors of NLRN transitional outcomes in previous studies of NLRN transition. As a measure for individual job satisfaction, I used the Individual Job Satisfaction Scale. This scale is comprised of eleven items, with each item representing one subscale of the NDNQI® Unit-based Job Satisfaction Scale. Using a mean of the eleven items was preferred over a single item measure, however the reliability and validity of using the scale in such a way had not been established. Therefore I calculated Coefficient Alpha to test the internal consistency of the items. I then assessed concurrent validity by correlating the 11-item

mean with the job enjoyment scale. These results are reported in the instrumentation section later in this chapter.

To assess unit-based factors that were thought to impact intent to leave in NLRNs, I evaluated the type of unit, staffing, and four RN workgroup job satisfaction determinants, namely nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration. The unit types were evaluated within seven categories as defined in Table 5. I chose these categories based on the review of the literature as well as the characteristics of the primary data set.

Table 5

Unit Types of Sample

Unit Type	Description	Operationally defined as Unit Type specified by NDNQI ® hospital coordinator
Adult Medical-Surgical	Inpatient units caring for adult medical-surgical patients, including Bone Marrow Transplant.	Medical, Surgical, Med-surg combination, Bone Marrow Transplant
Adult Step-down	Inpatient units caring for adults that do not require critical care, but require more care than provided on a standard acute care unit	Step-down
Adult Critical Care	Inpatient units caring for the most acutely and critically ill adult patients	Critical Care
Rehab inpatient	Inpatient units caring for adult or pediatric patients requiring rehabilitation services.	Adult rehab and Pediatric rehab
Neonatal Inpatient	Inpatient units that provide care for newborns.	Level I continuing care and well baby nursery, Level 2 intermediate care, and Level 2/IV critical care.

(continued)

Table 5. Unit Types of Sample (continued)

Unit Type	Description	Operationally defined as Unit Type specified by NDNQI® hospital coordinator
Pediatric Inpatient	Inpatient units caring for pediatric patients. Pediatrics includes patients from birth to age 18, but not neonates.	Pediatric critical care, Step-down, Medical, Surgical, Med-surg combination, Bone Marrow Transplant, Burn.
Psychiatry	Inpatient or outpatient units providing care for adult or pediatric patients with psychiatric diagnoses or disorders.	Psychiatric (Adult, Adolescent, Child/Adolescent, Child, Geripsych, Behavioral Health

Prior to the analysis, three measures for staffing were considered for inclusion in the model. These included two administrative measures of staffing: Nursing Hours per Patient Day (NHPPD), and RN Hours per Patient Day (RNHPPD). NHPPD has been used as a predictor for nurse sensitive outcome measures such as pressure ulcer development (Choi et al. 2013), but I questioned if NLRN satisfaction would be more closely linked to more nursing help in general (NHPPD) or if more RNs (RNHPPD) would be more closely aligned with NLRN satisfaction. Choi and Staggs (2014) examined the predictive power of various staffing measures, including the three under consideration for this study. RN-perceived staffing adequacy was not highly related to the administrative measures, but it was found to be the best predictor of unit acquired pressure ulcers. Given this evidence, data for all three measures were retained for this analysis.

Stamps (1997) offered a definition of job satisfaction to capture an individual's reaction to their work, "the extent to which people like their jobs" (p. 13). The NDNQI® Unit-based Job Satisfaction Scale shifts the focus from the individual to the unit by asking nurses to respond to questions from the frame of "Nurses with whom I work would say that..." The shift from

individual to unit supported the validity of unit-level reports and offered a view of the unit's capacity for interpersonal relationships.

The defining hospital characteristics of Magnet® status, teaching status, and size were controlled for in the third level of the model. The ANCC (2014a) reported fourteen forces of Magnetism that were identified during the original Magnet® research study in 1983. These attributes, linked to nursing excellence, are identified in Table 6.

Table 6

The Forces of Magnetism

Force	Description
1	Quality of Nursing Leadership
2	Organizational Structure
3	Management Style
4	Personnel Policies and Programs
5	Professional Models of Care
6	Quality of Care
7	Quality Improvement
8	Consultation and Resources
9	Autonomy
10	Community and the Health Care Organization
11	Nurses as Teachers
12	Image of Nursing
13	Interdisciplinary Relationships
14	Professional Development

(ANCC, 2014a)

The conceptual model for the study is depicted in Figure 1, page 10. All study variables were theoretically and operationally defined in Table 7.

Table 7

Model Variables Defined Theoretically and Operationally.

Variable	Dependent Variable	
	Theoretical	Operational
Intent to leave current position (ITLcp)	Nurses desire to leave their current position.	<p>Response to “What are your job plans for next year?”</p> <p>1= stay in current position</p> <p>2= stay in direct care, new unit, same hospital</p> <p>3 = stay in direct care, outside this hospital</p> <p>4 = leave direct care, stay in nursing</p> <p>5= leave nursing</p> <p>6 = retire.</p> <p>After recoding: dichotomous</p> <p>0 = 1 intend to stay in current position</p> <p>1 = 2-6 intend to leave current position (ITLcp).</p>
Variable	Independent Variables—Individual Factors	
	Theoretical	Operational
Race	Self-reported ethnic background	Nurse selection of one of the following: (1) White/Non-Hispanic, (2) Asian/Pacific Island, (3) Black or African American, (4) Hispanic/Latina(o), (5) American Indian, (6) Other/Mixed
Age	Age in years	A self-report of age in years; evaluated as interval data
Gender	Self-identified as male or female	Response to question, “What is your gender?” Male, Female
Education	Level of nursing education	Nurse selection of diploma, associate degree, baccalaureate degree, graduate degree. After recoding: dichotomous Below BSN = 0; BSN or higher = 1

(continued)

Table 7: Model Variables Defined Theoretically and Operationally (continued)

Variable	Independent Variables—Individual Factors	
	Theoretical	Operational
Job situation	Full time or part time employee	Nurse selection of (1) regular, permanent full-time employee of hospital > 36 hours per week; (2) regular, permanent part-time employee of hospital (< 36 hours per week)
Tenure on unit	Average Unit RN Tenure; a self-reported length of time nurse has been employed on the current unit.	Nurse selection of time frame: 3-6 months, 7-11 months, 1 year – 2 years.
Work shift	Self-reported usual shift	Nurse selection of (1) day shift, (2) evening shift, (3) night shift, (4) no USUAL shift
Individual job satisfaction	The extent to which people like their jobs (Stamps, 1997)	Mean score of 10 selected Individual-level Job Satisfaction items.
Perception of quality of care	Nurse's perception of care delivered on their unit.	Nurse selection of excellent, good, fair, or poor in response to question: "In general, how would you describe the quality of nursing care delivered to patients on your unit?" After recoding: dichotomous fair or poor = 0; excellent or good = 1
Adequacy of orientation	The extent to which the nurse's orientation fit their needs	Nurse selection of strongly agree, agree, tend to agree, tend to disagree, disagree, strongly disagree, in response to question: "I received an orientation that adequately prepared me for my current position." After recoding: dichotomous Agree = 1 or Disagree = 0

(continued)

Table 7: Model Variables Defined Theoretically and Operationally (continued)

Independent Variables— Unit-based Work-Related Factors		
Variable	Theoretical	Operational
Unit Type	The type of hospital based nursing unit identified by the patient population, acuity level, age, or type of service provided.	Adult Medical Surgical, Adult Step-Down, Adult Critical Care, Rehab Inpatient, Neonatal Inpatient, Pediatric Inpatient, or Psychiatry.
Nurse-Nurse interaction	Satisfaction with interactions, teamwork and overall friendliness of nurses on the unit.	Score of Nurse-Nurse interaction subscale of NDNQI ® Adapted Index of Work Satisfaction
Nurse-Physician interaction	Satisfaction with interactions with physicians overall sense of respect and appreciation.	Score of Nurse-physician interaction subscale of NDNQI ® Adapted Index of Work Satisfaction
Supportive Nursing Management	The degree to which nurses are satisfied with their nurse manager	Score of Supportive nursing management subscale of NDNQI ® Adapted Index of Work Satisfaction
Nursing Administration	The degree to which nurses are satisfied with the hospital's chief nurse executive.	Score of Nursing administration subscale of NDNQI ® Adapted Index of Work Satisfaction
Independent Variables— Hospital-Based Work-Related Factors		
Variable	Theoretical	Operational
Size	The number of staffed beds including both occupied and available beds.	The number of beds as recorded by the site coordinator: <25, 25-49, 50-74, 75-99, 100-199, 200-299, 300-300, 400-499, or >= 500. After recoding: dichotomous < 300 = 0; >300 = 1.

(continued)

Table 7. Model Variables Defined Theoretically and Operationally (continued)

Independent Variables— Hospital-Based Work-Related Factors		
Variable	Variable	Variable
Magnet® status	Hospitals that have been recognized by the American Nurses Credentialing Center (ANCC) as providing excellence in Nursing.	Yes or no as indicated from the ANCC website.
Teaching status	An academic medical center is a primary clinical site for school of medicine; Teaching hospitals are clinical sites for interns and residents while non-teaching hospitals are not clinical sites for interns and residents.	The answer to the question: NDNQI® teaching status. The site coordinator selected academic medical, teaching hospital, or non-teaching hospital.

Data Preparation

Appropriate NDNQI® personnel extracted the agreed upon 2012 RN Survey data and identified the data for this study. The raw, individual-level survey data were cleaned, that is, they were examined for missing data and duplicate responses per NDNQI® established protocols.

I compiled the data set for analysis from five data sets that were provided by NDNQI®: Hospital Demographics, Patient Days, Staffing, Individual-level RN surveys, and Unit-level data from RN surveys. There were 44,154 individual RN surveys. I eliminated surveys from nurses with greater than two years' experience (N=35,355) and those educated outside of the United States (N=28) resulting in N =8771. I explored the dataset for presence of the dependent variable and staffing data. Forty two surveys (0.5%) were missing the dependent variable, ITLcp and 386

(4.39%) of the surveys that met inclusion criteria had no accompanying staffing data.

Eliminating surveys where the proportion of missing data was less than 5% did not threaten the validity of the findings because even with the decreased N (N=8343) the study remained adequately powered. There were 67 predictor variables in the model, and 2652 events in the sample. The sample provided well over ten events per variable as recommended by Penny and Atkinson (2012). In fact, Vittinghoff and McCulloch performed two simulation studies and found that the minimum of ten occurrences per predictor variable may even be too conservative (2007).

I explored the data for outliers, unusual values, variability, and distribution. All predictor variables were reviewed for missing data and none of the independent variables had missing rates greater than 5%. In fact the highest rate of missing data was associated with race (0.8%). The missing data appeared to be missing at random, and posed no concerns to the validity or reliability of the findings. Imputations were not indicated, given the low rates of missing data (Penny & Atkinson, 2011).

The data were examined to assure the assumptions for data analysis were met. Categorical and ordinal data were examined for empty or small cells that might potentially violate Chi square assumptions or make the regression model unstable. All cells were adequately populated for the hierarchical regression model. Distributions of continuous data were evaluated for normality and variation by visual inspection of the histogram, Q-Q plots and skew and kurtosis values.

Instrumentation

RN Survey with Job Satisfaction Scales. The RN survey with job satisfaction scales is a 71-item scale with eleven validated subscales. This study used scores from the four subscales

listed below. See Appendix for a copy of the tool. Each item begins with the stem: *Nurses with whom I work would say that:*

- *Nurse-Nurse Interaction* (6 items; possible score range 6-36; scale midpoint 21),
Example: It's hard for new nurses to feel "at home" on the unit.
- *Nurse-Physician Interaction* (6 items; possible score range 6-36; scale midpoint 21), Example: Physicians respect the skill and knowledge of the nursing staff.
- *Supportive Nursing Management* (5 items; possible score range 6-30; scale midpoint 18), Example: Their nurse manager is a good manager and leader.
- *Nursing Administration* (5 items; possible score range 6-30; scale midpoint 18),
Example: They are satisfied with the hospital chief nurse executive.

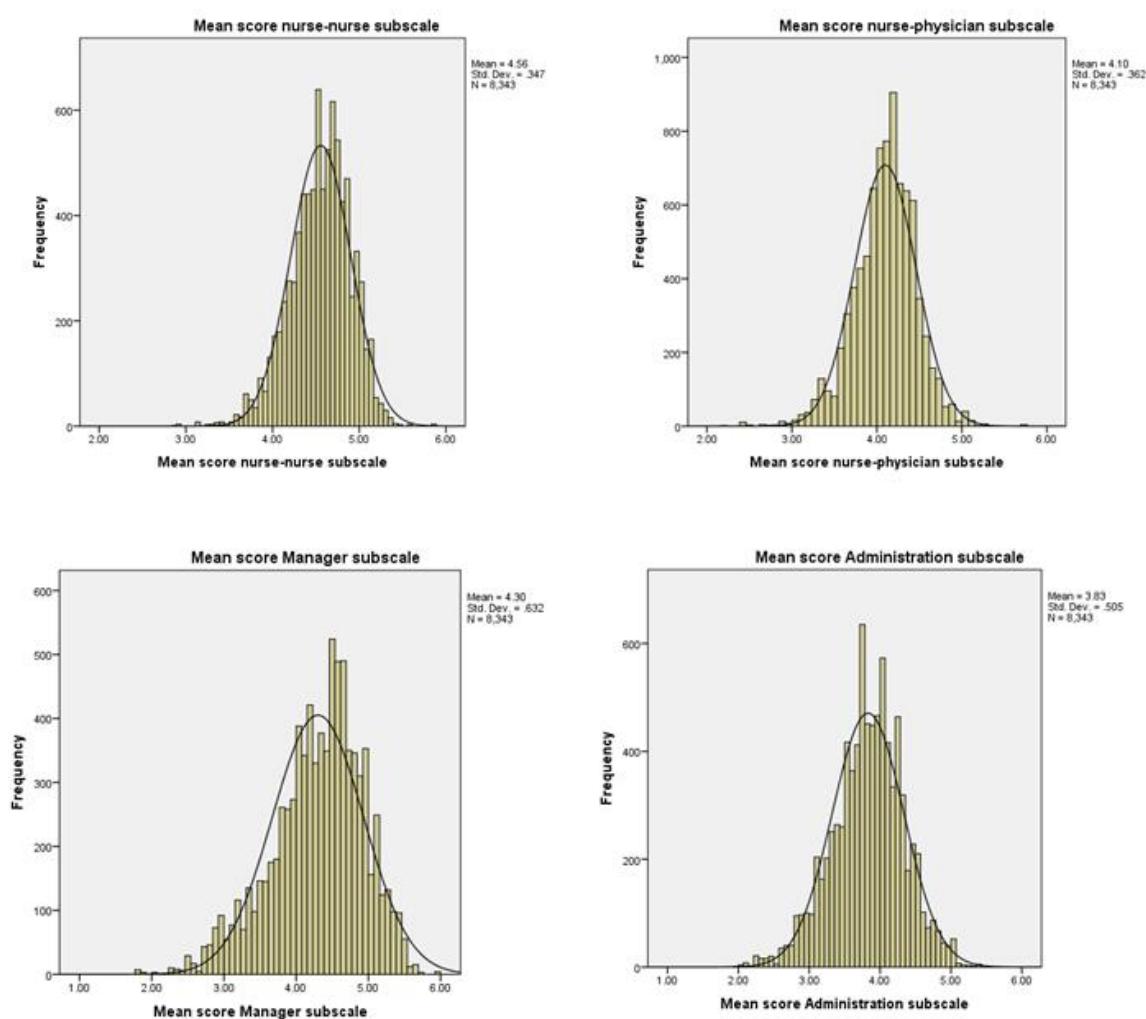
Participants respond using a 6-option Likert-type scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*). The RN Survey with Job Satisfaction Scales has demonstrated a high internal consistency and reliability at both the individual and workgroup levels (Boyle, Miller, Gajewski, Hart, & Dunton, 2006). Internal consistency estimates for the individual-level subscales ranged from .81 - .92. The tool also demonstrated high workgroup level reliability indices with ICC (1,k) ranging from .80 - .87 and workgroup coefficient alphas between .91 - .97. Taunton et al. (2004) described psychometric analyses of the tool, including assessment of dimensionality using exploratory factor analyses with Varimax rotation. The reliability of the composite was confirmed by a theta of .91. The Job Enjoyment items demonstrated a single factor solution (principal components analysis) Cronbach's alpha was .87. Construct validity was affirmed through a regression analysis in which scores from The Job Satisfaction Scale explained 56% of the variances in Job Enjoyment. This tool also demonstrated robust validity indices at the group level, with significant F ratios ($p \leq .05$) for all subscales and η^2 between .21 and .32. F

ratios and η^2 are commonly used to assess the relevancy of the mean as a measure of group-level scores

I assessed the data from the selected subscales for internal consistency. The items in each subscale were highly consistent as evidenced by Cronbach's coefficient alphas of .942 and higher. Although mathematically the measures were slightly skewed and leptokurtic, I did not transform the data because normality was not a requirement for multi-level logistic regression analysis. Histograms for each measure are provided in Figure 3.

Figure 3

Histograms of subscales measuring unit-based interpersonal dynamics



Individual-level Job Satisfaction Items. The Job Satisfaction Survey consisted of 11 items designed to measure individual job satisfaction. Although these items had not previously been used as a scale, I chose to evaluate the validity and reliability among the items and if psychometrically appropriate use the mean of this scale to represent individual job satisfaction.

Scale Validity/Reliability. I performed Principle axis factor analysis on the 11 individual job satisfaction items. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) verified the sample was adequate for the analysis (KMO = .91) with “marvelous” likelihood that factor analysis should yield distinct and reliable factors (Fields, 2013, p. 685). Eigenvalues, Scree Plot, and Communalities supported a one factor solution. The Bartlett’s Test of Sphericity was significant, indicating that the matrix was not an identity matrix. The correlation matrix demonstrated significant inter-item correlations ranging from .228 to .700 for ten of the eleven items. The ten items demonstrated high factor loadings (> 0.32) and they cumulatively explained 97.5% of the variance in scores. One item, “I need more autonomy in my daily practice” demonstrated correlations of .092 – 1.5, and had a poor factor loading (.193). The literature provided strong support for the idea that NLRNs feel insecure in their abilities (Duchscher, 2009, Boychuk-Duchscher, 2009, Bratt & Felzer, 2012, Godinez et al., 1999, Schoessler & Waldo, 2006, Scott, Engelke, & Swanson, 2008). It follows that higher levels of autonomy may not contribute to job satisfaction, and may even be a source of dissatisfaction in this subgroup of nurses. To remain consistent with the literature, I chose to eliminate the autonomy item from the proposed scale. See Table 8 for the factor matrix and reliability testing.

Table 8

Factor Matrix (Principal Axis Factoring) and Cronbach's Alpha

11 Items of Individual Job Satisfaction	Factor 1*	Communalities
Sufficient time for care	.614	.377
Good deal of teamwork	.458	.218
MDs appreciate what I do	.519	.252
Opportunity to participate in decision making	.662	.409
Satisfied with status of nursing	.797	.583
Present salary is satisfactory	.505	.253
Career development opportunities	.714	.472
Satisfied with chief nurse exec	.667	.325
Nurse manager is good	.560	.414
Satisfied with my job	.827	.628
Need more autonomy	.193	.035

Note. *1 factor extracted. 4 iterations required.

Cronbach's Alpha for 11 items .854

Cronbach's Alpha if autonomy item deleted .866

Job satisfaction has been defined as “the extent to which people like their jobs” (Stamps, 1997, p. 13). Job satisfaction has two dimensions, the cognitive which includes one's views of the job conditions, and the individual's emotional assessment of their job, known as job enjoyment (Wade et al., 2008) To test concurrent construct validity, I performed a Pearson Correlation between the mean score of the Job Enjoyment Scale (a unit-based measure) and the mean score of the ten items selected to measure individual job satisfaction. The correlation was

significant at .730 ($p < .001$), indicating the proposed 10 item measure of individual job satisfaction was significantly related to the higher order concept of unit-based job enjoyment. Finding all aspects of the psychometric analysis favorable, the 10 items were determined to be an acceptable scale. I used the mean of these ten items to represent the construct of individual job satisfaction.

Data Analysis

The Statistical Package for Social Sciences (SPSS v.22, Armonk, NY) was used for all descriptive statistics and Statistical Analysis System (SAS v. 9.2, Cary, NC) was used for the multi-level data analysis. I maintained a detailed log of all decisions related to the study as well as an audit trail of the analysis.

Multicollinearity assessment and model fit. I tested for multicollinearity first using SPSS to look for to look for highly correlated variables. There were no concerning correlations (greater than 0.80 – 0.90) (Fields, 2014). See Table 9 for Pearson's Correlation Table. To further assess for multicollinearity I checked the variance inflation factor (VIF) and the condition indices for each independent variable using SAS. The VIFs ranged from 1.026 – 3.665 and the condition indices were all less than 100. Some condition indices were greater than 30, but of these, none had a variance proportion of .50 or greater on the same line as the factor with a high condition index. Tolerance is the reciprocal ($1/VIF$), and tolerance less than 0.1 represents a severe problem while tolerance less than 0.2 indicates a potential problem (Fields, 2014; p. 325). I found none of these diagnostics indicative of significant multicollinearity.

[illegible]

To assess for suppression, I checked zero-order, partial, and part correlations for all variables. The zero-order correlation is the same as the Pearson correlation coefficient; it takes zero other variables into account. A correlation between two variables when the effects of other variables are held constant is a partial correlation. A Part (or Semi-Partial) correlation expresses the unique relationship between two variables when other variables are ruled out. When suppression is not an issue, the zero-order correlation should be the largest, followed by the partial correlation. The part correlation should be the smallest. If the signs of the Beta coefficients and the zero-order correlations are in opposite directions, then suppression is suspected (Fields, 2014). The hospital size and Nurse-Administration variables may be subject to modest suppression, however, this was not surprising given the complexity of the model. See Table 10 for model coefficients.

Table 10

Correlation Coefficients and Collinearity Statistics for Model Variables

Variable	Correlations			Collinearity Statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Magnet®	-.046	.008	.007	.654	1.528
Teaching status	.042	.023	.021	.615	1.625
Hospital Size	-.003	.012	.011	.567	1.765
Unit Type	-.107	-.054	-.049	.847	1.180
Total NHPPD standardized by unit type	-.037	-.028	-.025	.274	3.650
Total RNHPPD standardized by unit type	-.020	.037	.033	.273	3.665
Nurse-Nurse	-.147	-.011	-.010	.593	1.685
Nurse-Physician	-.101	.018	.016	.710	1.409

(continued)

Table 10: *Correlation Coefficients and Collinearity Statistics for Model Variables (continued)*

Variable	Correlations			Collinearity Statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Nurse-Manager	-.108	-.019	-.017	.716	1.397
Nurse-Administration	-.077	.044	.039	.690	1.449
Race	.067	.034	.030	.967	1.034
Age	-.033	-.080	-.072	.892	1.122
Gender	-.031	-.062	-.056	.975	1.026
Education	.001	.005	.004	.900	1.111
Job Situation	.006	.006	.005	.973	1.028
Tenure	.108	.065	.059	.958	1.043
Usual shift	.011	.016	.014	.942	1.062
Job Satisfaction	-.403	-.287	-.269	.635	1.574
Quality of care	-.290	-.089	-.080	.689	1.452

Dependent Variable: ITLcp

Having assessed for multicollinearity, a multi-level logistic regression analysis was performed to examine the relationships between the three levels of variables (individual, unit-based, and hospital level) and the dependent variable, ITLcp. Using SAS the variables were entered in a logistic regression analysis simultaneously, and then regressed with the dependent variable, ITLcp. The three-level logistic model was run four times. For Model 1,

Model 2, and Model 3, I used each of the three staffing variables. For Model 4, I used the RNHPPD and the NLRN's perception of staffing. I evaluated the data for the best model fit. Model adequacy was established by comparing the -2 Log Likelihood and theoretical fidelity for each model (Herrington & Starkweather, 2013).

Human Subjects Protection

When the NDNQI® data were collected, the nurses were informed of the voluntary and anonymous nature of the survey. Nurses were encouraged but not required to participate; benefits of participating in the survey were shared, including (a) creation of national level data for quality initiatives, policy research, Magnet® application, and RN retention and recruitment and (b) to satisfy reporting requirements of Centers for Medicare and Medicaid Services (CMS). Hospital participation is not disclosed. Separate consent was not obtained for this particular study, but consent had been obtained to use the data for RN retention and recruitment efforts, and that purpose is consistent with this study. The researcher has completed Compliance Training, pledged to keep the data confidential, and will report only aggregated findings after obtaining permission of the NDNQI® researchers to disseminate.

The NDNQI® has approval for the RN Survey from the University of Kansas Medical Center Institutional Review Board. After confidentiality agreements were signed, I was added to the NDNQI® research team and given permission to work with the data. IRB approval was obtained as the study was not human research.

Data Protection

All data were de-identified and stored on the password protected Q-Drive in the School of Nursing. The drives are backed up every 24 hours to protect the data. When it was necessary to transfer the data to others involved in the research study a program for secure files transfer

was used. All printed data were kept confidential and maintained in a locked file in the student co-investigator's office in the School of Nursing. Electronic files were stored on the password protected Q-Drive in the School of Nursing. The data from the pilot study were also retained according to this plan. Raw data were reviewed only by the research team.

Data collected will be presented or published as aggregated data. Records will be retained in a locked file for six years per institution protocol. No retained documents will contain any identifiable data. At the end of six years, the files will be deleted and any hard copy data will be shredded. Any unanticipated problems, such as a privacy violation or breach of confidentiality, will be immediately reported to the NDNQI® research team and the Human Subjects Committee at the University of Kansas Medical Center.

Summary

In Chapter Three, the methodology for this descriptive research study using a secondary data analysis of NDNQI® NLRN job satisfaction data was described. The variables of concern were selected based on the literature review and were aligned conceptually with the NDNQI®-Adapted Index of Work Satisfaction conceptual framework (Chapter Two). A priori sample size was determined to detect a medium effect. Details of the survey reliability, data management including compilation, cleaning, analysis and protection plans were presented.

Chapter Four

Results

The research aim guided the data analysis and interpretation of the results. The predictors were chosen based on a conceptual framework based on the evidence.

There are two sections in this chapter. The first section provides a detailed description of the sample. The sample descriptions will include each variable in the model. I will describe each variable, organizing them into four groups. The first three groups include variables nested within each of the three hierarchical cluster variables in the model: Hospital characteristics, unit characteristics, and individual NLRN characteristics. Then the dependent variable will be described. In the second section of this chapter I will present the results of the hierarchical analysis addressing the primary study aim.

Sample Description

Hospitals

The NLRNs in this sample worked at 210 different hospitals in the United States. While only 31.4 % of the hospitals in the survey were Magnet® facilities, 56.2% of the nurses in the survey worked in Magnet® facilities and slightly over one third of the nurses in the survey worked in hospitals with more than 500 beds.

Nursing Units

The sample was comprised of 1537 different nursing units. The unit types were recoded to the seven types detailed in Table 5. Slightly greater than half of the units (52.6%) and the NLRNs (54.7%) were associated with adult medical-surgical units. The adult critical care units composed 40% of the total Nursing units, but only 14.4% of the total NLRN sample. Adult Step-

down units comprised 13.3% of the units and 17.2% of the sample. See Table 11 for the descriptive statistics associated with the hospitals and units.

Table 11

Description of Sample in Terms of Hospital and Unit Types

Characteristic	NLRNs N = 8343 %		Hospitals N = 210 %		Units N = 1537 %	
Magnet®	4865	56.2	66	31.4		
Non-Magnet®	3658	43.8	144	68.6		
Teaching Status						
Academic Medical Center	2578	30.9	24	11.4		
Teaching	3416	40.9	85	40.5		
Non-teaching	2349	28.2	101	48.1		
AHRQ Staffed Bed Size						
Less than 100	466	5.6	52	24.8		
100-199	1323	15.9	63	30		
200-299	1177	14.1	32	15.2		
Total (< 300 beds)	2966	35.6	147	70.0		
300-399	1045	12.5	24	11.4		
400-499	1387	16.6	18	8.6		
>= 500	2945	35.3	21	10		
Total (>= 300 beds)	5377	64.4	63	30		
Unit Type						
Adult Medical-Surgical	4563	54.7			808	52.6
Adult Step-down	1437	17.2			205	13.3
Adult Critical Care	1204	14.4			245	40
Rehab inpatient	114	1.4			40	2.6
Neonatal Inpatient	307	3.7			55	3.6
Pediatric Inpatient	508	6.1			97	6.3
Psychiatry	210	2.5			87	5.7

Note. AHRQ = Agency for Healthcare Research and Quality

Staffing. To find the most appropriate measure of staffing I explored three different variables. Two of the variables were administrative measures: Total nurse hours per patient day (RN+LPN+Unlicensed Assistants) and RN hours per patient day. These measures were

calculated from staffing and patient census data aggregated for the month prior to the survey month. The third measure was the NLRN's level of agreement with the statement: "My patient care assignment was appropriate, considering both the number of patients and the care they required."

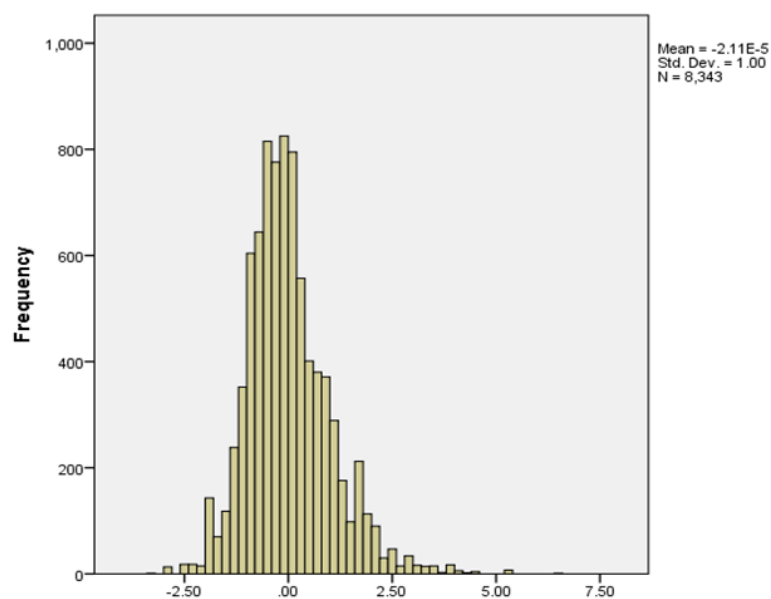
It was not surprising to find a large variance among the administrative measures of staffing adequacy. Nurse hours per patient day displayed a 32.51 hour range (3.99 – 36.50), with a mean of 11.09 and SD of 3.79. Likewise, RN hours per patient day had a 34.4 hour range (2.03 – 36.43) with a mean of 8.424 and SD of 4.06.

Adult critical care units had the highest mean RN hours per patient day of 15.62 (SD 2.28). The average RN per patient day for pediatric units was 12.33 (SD 5.71). The wide standard deviation was not surprising given that all pediatric units (including critical care) were included in the pediatric subset. The unit with the lowest RN hours per patient day was Psychiatry (4.28 (SD 1.51) followed by Rehabilitation units (5.32, SD 1.20). Because variability was expected across unit types, these data were standardized based on unit type using Z-scores.

Z-scores for Total nurse hours per patient day had a range of 9.59 with the minimum being -3.6 and the maximum being 5.99. The Z score for RN Hours per patient day had a slightly higher range of 9.93, with the minimum being -3.36 and maximum 6.57. Both Total Nurse Hours and RN Hours were positively skewed, indicating a tendency for units to be more highly staffed, compared to their comparative means, rather than being understaffed.

Figure 4

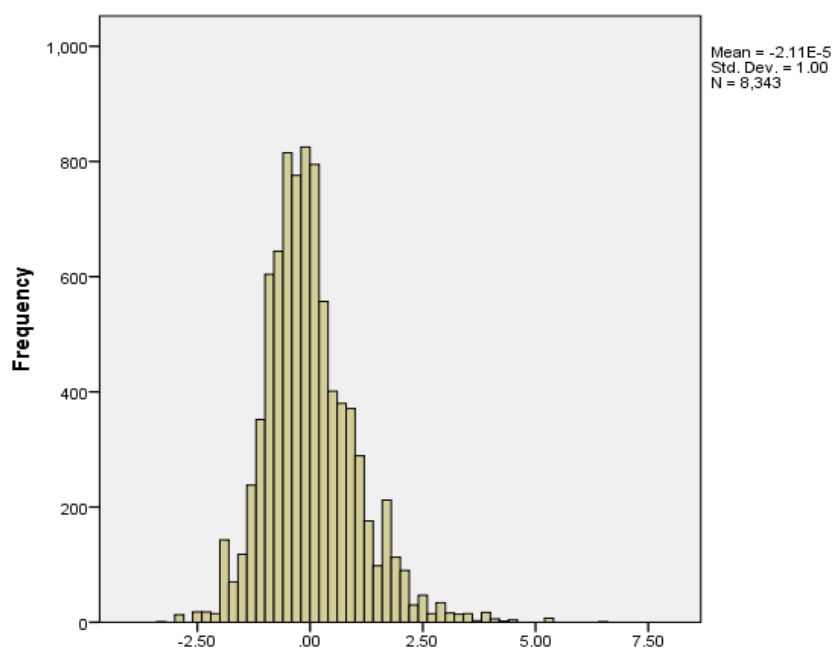
Histogram of Total Nurse Hours per Patient Day Standardized by Unit Type (Z-scores)



RN Staffing Standardized by Unit Type

Figure 5

Histogram of RN Hours per Patient Day Standardized by Unit Type (Z-scores)

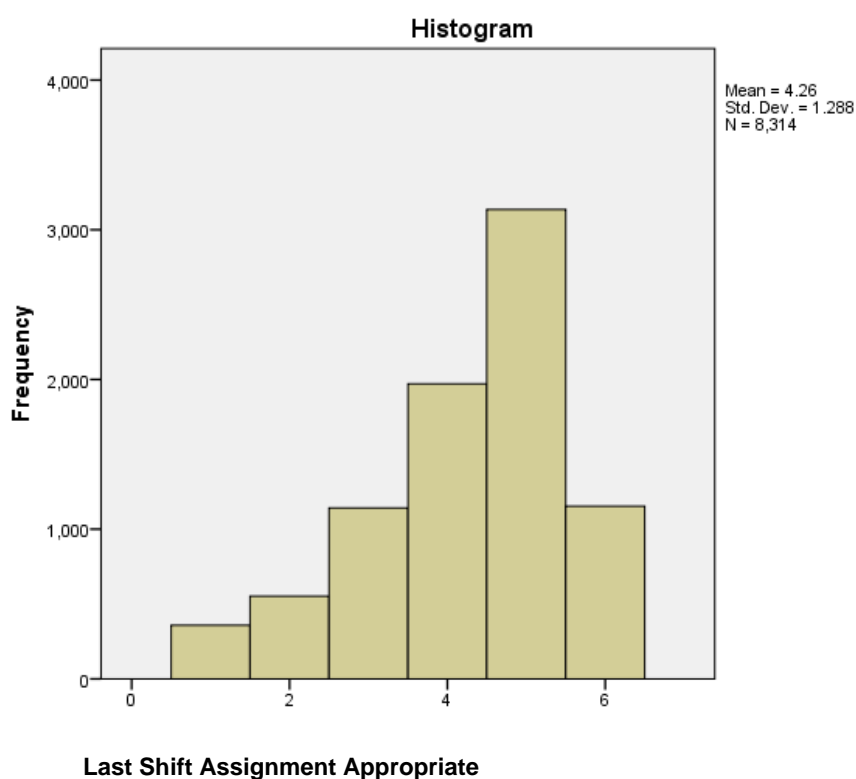


Total Nurse Staffing Standardized by Unit Type

Overall, the NLRNs agreed that their assignment during the shift prior to the survey had been appropriate considering both the number of patients and the care they required (mean 4.26, SD 1.288). A mode of 4 indicated that most respondents tended to agree with the statement. See Figure 6.

Figure 6

Histogram of NLRNs' Perception of Staffing



Interpersonal dynamics. The unit's interpersonal dynamics were measured using four subscales from the *RN survey with Job Satisfaction Scales*, namely *Nurse-Nurse Interaction*, *Nurse-Physician Interaction*, *Supportive Nursing Management*, and *Nursing Administration*. These mean subscale scores were derived from the unit-based surveys, meaning that the data represented the perspective of the entire unit, not just the NLRNs. Overall, nurses rated the interpersonal dynamics on their respective units favorably. On a 6 point Likert scale with 6 being

the highest rating (strongly agree) and 1 being the lowest rating (strongly disagree) the mean scores for *Nurse-Nurse Interaction*, *Nurse-Physician Interaction*, *Supportive Nursing Management* subscales were all greater than 4.0 indicating a tendency to agree with the statements and reflecting an overall sense of satisfaction. The *Nursing Administration* subscale was slightly lower than the other scales at 3.83. See Table 12 for the descriptive statistics associated with these measures.

Table 12

Descriptive Statistics for Measures of Unit-based Interpersonal Dynamics

Subscales	Mean	Standard Deviation	Range	Skewness	Cronbach's Alpha
Nurse-Nurse	4.5561	.34685	3.04	-.464	.942
Nurse-Physician Manager	4.0987	.36155	4.33	.027	.968
Administration	4.3016	.63191	4.09	.598	.974
	3.8294	.50489	3.41	.054	.950

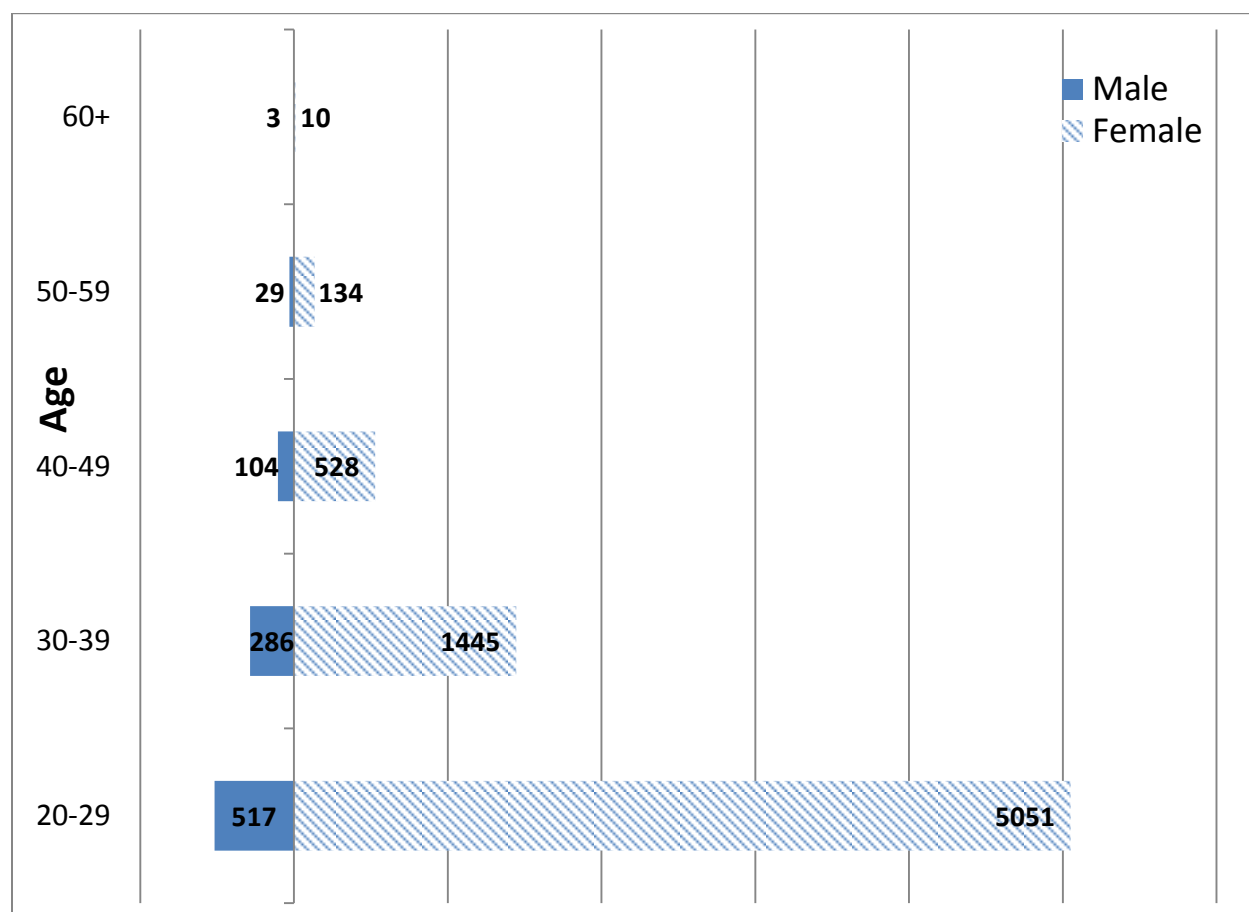
Note. Based on data from 1537 units

Individual NLRN Characteristics

The majority of the NLRNs in this sample were White (77.7%) and 88% were female. Most of those surveyed (99.44%) reported both age and gender and the majority of those reporting were 20-29 years old (67.11%). The mean age was 28.76 (SD 7.173). The distribution of the sample age and gender is depicted in a population diagram in Figure 7.

Figure 7

Age and Gender of Sample



Most NLRNs were Baccalaureate (BSN) prepared (63.5%) and the proportion of NLRNs with a BSN was higher in 2012 compared to 57.9% BSNs in the pilot study using 2011 data. Further description of the categorical variables associated with the NLRNs may be found in Table 13. Although the categorical data are presented in greater detail in this section, it was necessary to recode several of the variables to be dichotomous to simplify the model for hierarchical analysis.

Table 13

Characteristics of NLRNs (Categorical)

Characteristic	N	%
Race		
White/NonHispanic	6488	77.7
Asian/Pacific Island	436	5.2
Black/African Am	529	6.3
Hispanic/Latina(o)	415	5.0
American Indian	19	.2
Other/Mixed	394	4.7
Missing	64	.8
Gender		
Male	955	11.4
Female	7342	88.0
Missing	46	.6
Highest Level of Nursing Education		
Baccalaureate	5299	63.5
Graduate	150	1.8
Total BSN or higher	5449	65.3
Associate	2684	32.2
Diploma	206	2.5
Total	2890	34.7
Missing	46	.6
Job Situation		
Full time	7604	91.1
Part time	600	7.2
Prn	150	1.8
Total not FT	750	9.0
Missing	4	.0
Usual Shift		
Day shift	3426	41.1
Evening shift	465	5.6
Night shift	3195	38.3
No usual shift	1231	14.8
Missing	26	.0
Intention to Leave Current Position		
Stay	5691	68.2
Leave	2652	31.8

Tenure on Unit. The majority of the nurses ($N = 4505$; 54%) reported 6-12 months tenure on the unit. Approximately 1/3 of the sample ($N=2434$; 29.3%) reported between one and two years of experience. Slightly more than 16% of the sample had less than or equal to six months experience. The distribution of these data are depicted in Figure 8.

Figure 8

NLRN Tenure on Unit



Individual job satisfaction. The NLRNs tended to be satisfied with their jobs ($M = 4.29$, $SD = .764$). A score of 4 on each item indicated a ‘tendency to agree’. See Figure 9 for the histogram depicting this variable. Other descriptive statistics for the individual satisfaction measure are found in Table 14.

Figure 9

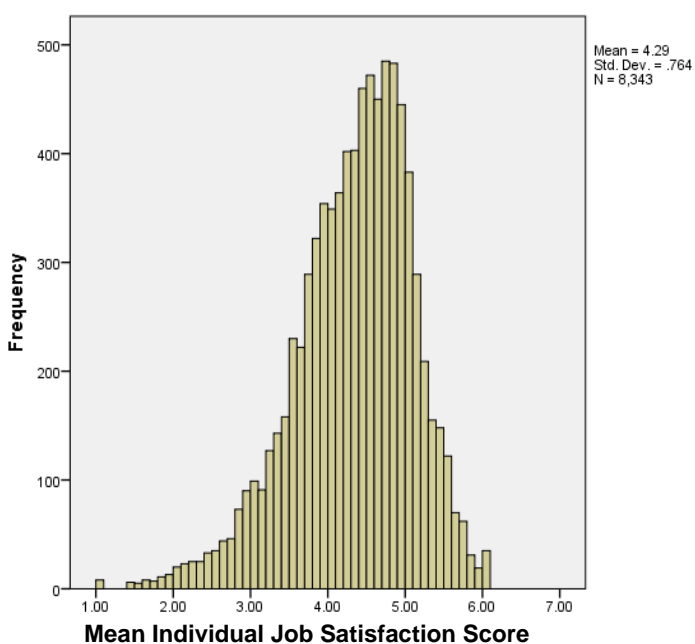
Histogram of Individual Job Satisfaction

Table 14

Descriptive statistics for individual predictors

Measure	Mean	Standard Deviation	Range	Skewness (Standard error)	Cronbach's Alpha
Individual job satisfaction	4.2866	.76428	5.0	-.665 (.027)	.866
Quality of care in general	3.34	.648	3.0	-.603 (.027)	
Adequate orientation	4.890	1.0913	5.0	-.150 (.027)	

Perception of quality of care. NLRNs reported that patients on their unit received high quality of care. Figure 10 details the NLRNs' ratings of quality of nursing care. Other descriptive statistics for the perception of quality of care are found in Table 14.

Figure 10

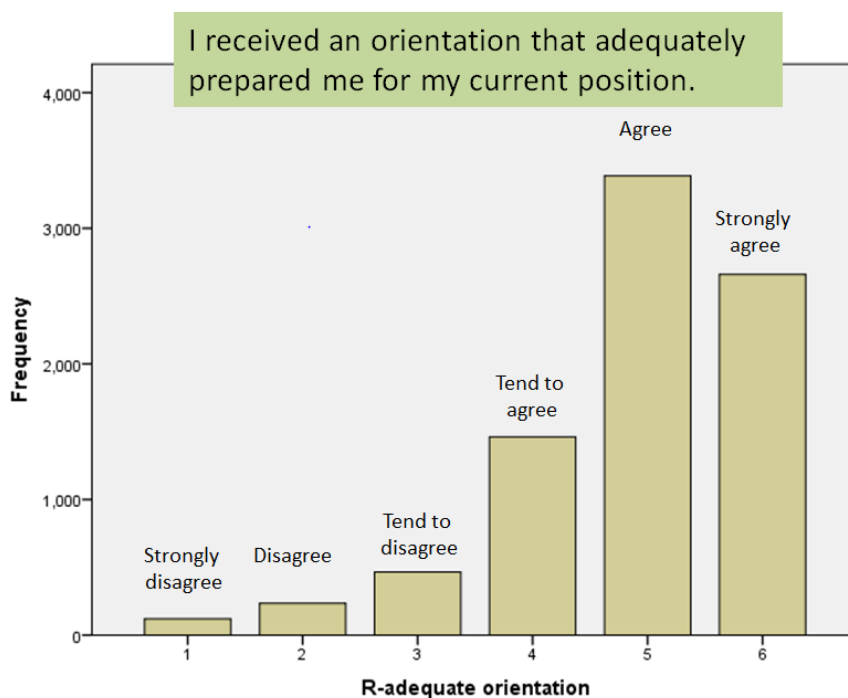
NLRNs' Perception of Quality of Care on Their Units



Adequacy of orientation. Most NLRNs (N=7509; 90%) believed their orientation adequately prepared them for their current position, however the measure of orientation adequacy had more variability than the other individual measures reported in Table 14. Figure 11 depicts the distribution of data for this measure.

Figure 11

NLRNs' Perception of the Adequacy of Orientation



Intention to Leave Current Position (ITLcp)

In terms of the dependent variable, ITLcp, 2652 (31.8%) expressed the intent to leave their current position, however most were planning to stay in direct patient care, with only 4% planning to leave the bedside and 0.4% planning to leave the profession. See Table 15.

Table 15

NLRNs' Job Plans for Upcoming Year

Plan	N	%
Stay in my current position	5691	68.2
Stay in direct patient care in another unit in this hospital	1259	15.1
Stay in direct patient care but outside this hospital	1019	12.2
Leave direct patient care but stay in the nursing profession	336	4.0
Leave the nursing profession for another career	36	.4
Retire	2	.0
Total	8343	100.0

Summary: Sample Description

The sample consisted of 8343 NLRNs who worked on 1537 different units within 210 hospitals. Slightly over half of the hospitals were designated Magnet® facilities. Although 70% of the hospitals were less than 300 beds, most of the NLRNs (64.4%) were employed by hospitals with more than 300 beds. In terms of unit type, 86.3% of the NLRNs worked with adult populations: 54.7% in medical/surgical, 17.2% in adult step-down units, and 14.4% in adult critical care. Most NLRNs said their assignment during the shift prior to the survey had been appropriate. In terms of the Unit-based capacity for interpersonal dynamics, NLRNs provided favorable responses, with the highest ratings given to the *Nurse-Nurse relationship* and the lowest ratings were associated with the *Nursing Administration* subscale.

Most of the survey respondents were 20-29 year old Caucasian females. Most NLRNs had a Baccalaureate degree or higher (65.3%) and worked full time (91.1%). There was a nearly equal distribution of NLRNs working days (41.1%) as nights (38.3%). In terms of unit tenure, over half of the sample reported > 6 months and < 1 year. NLRNs tended to be satisfied with their jobs (mean = 4.29 SD = .764 on 7 point scale), and gave high ratings to the care delivered on their unit, and the adequacy of their orientation. None the less, nearly one third of the sample (31.8%) intended to leave their current position within the next year.

Three-Level Hierarchical Logistic Regression Analysis

The hierarchical logistic regression model was fit using the SAS® GLIMMIX Procedure (Schabenberger, n.d.), using hospital and unit ID as classification variables. The GLIMMIX Procedure estimated the parameters by applying the pseudo-likelihood techniques. This method of analysis was appropriate for the clustering of observations (nurses nested within units, and units nested within hospitals). Both hospital and unit effects were measured by random intercept, a linear combination of grand mean, and a deviation from that mean. Four different models were constructed using different measures of staffing. Model One used the nurses' perception of staffing, Model Two used the total nurse hours per patient day (HPPD), Model Three used RN HPPD, and Model Four used a combination of the nurses' perception of staffing and RN HPPD. Table 16 lists the odds ratios and 95% confidence intervals for the four different models. Although the SAS® program read all observations, (N=8343) the hierarchical analysis was based on N=8017.

Table 16

Odds Ratios and [95% Confidence Intervals] for Models of Nurse Transition Factors Associated

With Intention to Leave Current Position

Variables (reference group)	Model 1	Model 2	Model 3	Model 4
Magnet® status	1.1002 [.09267, 1.3063]	1.0998 [0.9263, 1.3059]	1.0879 [0.9185, 1.2885]	1.0917 [.9210, 1.2940]
Academic hospital (non- teaching)	.9153 [.7207, 1.1624]	.9136 [.7193, 1.1603]	.8953 [.7064, 1.1348]	.8972 [.7067, 1.1390]
Teaching hospital (non- teaching)	.8605 [.7182, 1.0311]	.8619 [.7196, 1.0322]	.8640 [.7230, 1.0326]	.8609 [.7198, 1.0297]
Hospital >300 beds (hospital < 300 beds)	.9580 [.8042, 1.1412]	.9633 [.8084, 1.1478]	.9761 [.8205, 1.1614]	.9692 [.8139, 1.1541]
Adult step down (med-surg)	.9773 [.8290, 1.1521]	.9750 [.8264, 1.1502]	.9801 [.8306, 1.1566]	.9817 [.8324, 1.1577]
Adult critical care (med-surg)	.5374** [.4386, .6586]	.4837** [.3978, .5881]	.4864** [.3999, .5916]	.5429** [.4426, .6659]
Rehab (med-surg)	1.5972* [1.0083, 2.5302]	1.5499 [.9774, 2.4579]	1.5657 [.9869, 2.4840]	1.6115* [1.0166, 2.5546]
Neonatal (med-surg)	.3599** [.2404, .5387]	.3238** [.2171, .4831]	.3277** [.2194, .4892]	.3652** [.2436, .5475]
Pediatrics (med-surg)	.5291** [.3890, .7197]	.4927** [.3628, .6690]	.4983** [.3671, .6764]	.5363** [.3940, .7299]
Psychiatry (med-surg)	.9566 [.6594, 1.3879]	.9096 [.6289, 1.3155]	.9052 [.6257, 1.3095]	.9545 [.6578, 1.3850]
Total RN HPPD			1.0215 [.9570, 1.0904]	1.0387 [.9724, 1.1095]

(continued)

Table 16: Odds Ratios and [95% Confidence Intervals] for Models of Nurse Transition Factors Associated With Intention to Leave Current Position (continued)

Variables (reference group)	Model 1	Model 2	Model 3	Model 4
Total Nurse HPPD		.9745 [.9128, 1.0405]		
Assignment appropriate	.8464* [.7688, .9319]			.8400* [.7621, .9258]
Nurse-Nurse interaction	.8480 [.6801, 1.0573]	.0818* [.6443, .9978]	.7919* [.6357, .9864]	.8393 [.6725, 1.0476]
Nurse-Physician interaction	1.1508 [0.9430, 1.4045]	1.1578 [0.9484, 1.4135]	1.1641 [0.9536, 1.4211]	1.1553 [.9465, 1.4101]
Supportive nursing management	.9059 [.8099, 1.0134]	.9031 [.8070, 1.0106]	.9077 [.8110, 1.0160]	.9103 [.8135, 1.0186]
Nursing administration	1.1629 [.9920, 1.3632]	1.1312 [.9659, 1.3248]	1.1262 [.9623, 1.3181]	1.1618 [.9915, 1.3613]
Race Asian (Caucasian)	1.040 [.8093, 1.3384]	1.0454 [.8131, 1.3441]	1.0446 [.8126, 1.3429]	1.0402 [.8090, 1.3376]
Race African American (Caucasian)	1.1589 [.9297, 1.4447]	1.1489 [.9215, 1.4323]	1.1523 [.9243, 1.4365]	1.1633 [.9332, 1.4500]
Race Hispanic (Caucasian)	1.1380 [.8813, 1.4695]	1.1269 [.8724, 1.4557]	1.1297 [.8749, 1.4587]	1.1399 [.8831, 1.4714]
Race American Indian (Caucasian)	2.1250 [.7404, 6.0993]	2.1875 [.7589, 6.3054]	2.1988 [.7612, 6.3510]	2.1373 [.7434, 6.1444]
Race, other (Caucasian)	1.2802 [.9945, 1.6479]	1.2774 [.9925, 1.6440]	1.2775 [.9926, 1.6440]	1.2801 [.9945, 1.6479]
Age	.9696** [.9614, .9779]	.9697** [.9615, .9780]	.9696** [.9614, .9779]	.9695** [.9613, .9778]

(continued)

Table 16: Odds Ratios and [95% Confidence Intervals] for Models of Nurse Transition Factors Associated With Intention to Leave Current Position (continued)

Variables (reference group)	Model 1	Model 2	Model 3	Model 4
Gender (male)	.6246** [.5271, .7401]	.6270** [.5291, .7430]	.6274** [.5294, .7435]	.6248** [.5272, .7404]
Education BSN or higher	1.1165 [.9830, 1.2681]	1.1161 [.9826, 1.2676]	1.1139 [.9809, 1.2650]	1.1151 [.9818-1.2665]
Job situation, Full Time	1.0475 [.8542, 1.2847]	1.0536 [.8594, 1.2918]	1.0517 [.8580, 1.2892]	1.0467 [.8535, 1.2836]
Tenure on Unit	1.3147** [1.2073, 1.4317]	1.3128** [1.2056, 1.4295]	1.3119** [1.2048, 1.4285]	1.3145** [1.2071, 1.4314]
Shift, evenings (days)	1.1221 [.8727, 1.4428]	1.1256 [.8755, 1.4472]	1.1254 [.8753, 1.4470]	1.1221 [.8727, 1.4428]
Shift, nights (days)	1.1935* [1.0560, 1.3490]	1.1895* [1.0525, 1.3444]	1.1879* [1.0511, 1.3425]	1.1924* [1.0550, 1.3476]
Shift, no usual (days)	1.0439 [.8613, 1.2651]	1.0369 [.8557, 1.2564]	1.0342 [.8537, 1.2528]	1.0412 [.8593, 1.2613]
Job satisfaction	.3148** [.2866, .3458]	.3084** [.2809, .3385]	.3079** [.2805, .3381]	.0347** [.2865, .3457]
Quality of Care	.5796** [.4747, .7078]	.5647** [.4627, .6893]	.5611** [.4597, .6849]	.5776** [.4730, .7054]
Orientation Adequacy	.7967* [.6637, .9563]	.7914* [.6592, .9502]	.7933* [.6608, .9524]	.7981* [.6648, .9580]
-2 Res Log Pseudo- Likelihood	37405.23	37380.24	37373.17	37408.61

Note: Based on 8343 observations read; 8017 observations used.

*Indicates significant at $p < .05$

**Indicates significant at $p < .0001$

Most statistically significant variables were found to be significant across all models.

Some exceptions were found within the unit type measures. In Model 1 and Model 4, ITLcp was

significantly different between NLRNs on Rehab units compared to those on medical-surgical units. Additionally, the *Nurse-Nurse interaction* measure was a significant predictor of ITLcp in Model 2 and Model 3. The nurse's perception of staffing was a significant indicator in both models that incorporated it (Model 1 and Model 4), but the administrative measures for staffing were not significant. Model 3 had the lowest -2 residual log pseudo-likelihood and used RN hours per patient day as the staffing measure. When the nurse's perception of staffing was added to the RN hours per patient day the -2 log likelihood increased by 35.37, and the *Nurse-Nurse interaction* measure was not significant. (See Model 4). Model 3 was selected because it had the best theoretical and statistical fit. The results of Model 3 are presented in Table 17.

Table 17: Results of a three level hierarchical model of ITLcp in NLRNS (GLIMMIX Procedure) Model 3 Variables with estimates

Variable	B Estimate	Standard Error	Alpha	Odds Ratio	95% Confidence Interval	
					Lower	Upper
Hospital-level Variables						
Magnet® status	0.08427	0.08633	.3291	1.0879	0.9185	1.2885
Academic hospital (non- teaching)	-0.1106	0.1209	.3605	0.8953	0.7064	1.1348
Teaching hospital (non- teaching)	-0.1461	0.09091	.1080	0.8640	0.7230	1.0326
Hospital >300 beds (hospital < 300 beds)	-0.02415	0.08864	.7853	0.9761	0.8205	1.1614

(continued)

Table 17: Results of a three level hierarchical model of ITLcp in NLRNS (GLIMMIX Procedure) Model 3 Variables with estimates (continued)

Variable	B Estimate	Standard Error	Alpha	Odds Ratio	95% Confidence Interval		
					Lower	Upper	
Unit-level Variables							
Unit Type (compared to adult medical surgical)							
Adult step down	0.02007	0.08446	0.8122	0.9801	0.8306	1.1566	
Adult critical care	-0.7207	0.09985	<.0001	0.4864	0.3999	0.5916	
Rehabilitation	0.4483	0.2354	.0569	1.5657	0.9869	2.4840	
Neonatal	-1.1158	0.2045	<.0001	0.3277	0.2194	0.4892	
Pediatrics	-0.6966	0.1559	<.0001	0.4983	0.3671	0.6764	
Psychiatry	-0.09963	0.1884	.5969	0.9052	0.6257	1.3095	
Staffing Variable							
Total RN HPPD	0.02129	0.03330	.5227	1.0215	0.9570	1.0904	
Interpersonal Dynamics							
Nurse-Nurse interaction	-0.2334	0.1120	.0373	0.7917	0.6357	0.9864	
Nurse- Physician interaction	0.1519	0.1018	.1355	1.1641	0.9536	1.4211	
Supportive nursing management	-0.09681	0.05748	.0922	0.9077	0.8110	1.0160	
Nursing administration	0.1189	0.08024	.1385	1.1262	0.9623	1.3181	

(continued)

Table 17: Results of a three level hierarchical model of ITLcp in NLRNS (GLIMMIX Procedure) Model 3 Variables with estimates (continued)

Variable	B Estimate	Standard Error	Alpha	Odds Ratio	95% Confidence Interval		
					Lower	Upper	
Individual-level Variables							
Race (compared to Caucasian)							
Asian	0.04364	0.1281	.7334	1.0446	0.8126	1.3429	
African American	0.1418	0.1125	.2075	1.1523	0.9243	1.4365	
Hispanic	0.1220	0.1304	.3496	1.1297	0.8749	1.4587	
American Indian	0.7879	.5411	.1454	21.988	0.7612	6.3510	
Other	0.2449	0.1287	.0571	1.2775	0.9926	1.6440	
Age	-0.03085	0.004338	<.0001	.9696	0.9614	0.9779	
Gender (male)	-0.4662	0.08661	<.0001	0.6274	0.5294	0.7435	
Education BSN or higher	0.1079	0.06489	.0964	1.1139	0.9809	1.2650	
Job situation, Full Time	0.05041	0.1039	.6274.	1.0517	0.8580	1.2892	
Tenure on Unit	0.2715	0.04345	<.0001	1.3119	1.2048	1.4285	
Shift, evenings (days)	0.1181	0.1282	.3568	1.1254	0.8753	1.4470	
Shift, nights (days)	0.1722	0.06242	.0058	1.1879	1.0511	1.3425	
Shift, no usual (days)	0.03361	0.09784	.7312	1.0342	0.8537	1.2528	

(continued)

Table 17: Results of a three level hierarchical model of ITLcp in NLRNS (GLIMMIX Procedure) Model 3 Variables with estimates (continued)

Variable	B Estimate	Standard Error	Alpha	Odds Ratio	95% Confidence Interval	
					Lower	Upper
Job satisfaction	-1.1779	0.04766	<.0001	0.3079	0.2805	0.3381
Quality of Care	-0.5778	0.1017	<.0001	0.5611	0.4597	0.6849
Orientation Adequacy	-0.2315	0.09322	0.0130	0.7933	0.6608	0.9524

Hospital and Unit-level Predictors of ITLcp

None of the Hospital-level predictors (*Magnet® status, teaching status, or size*) were predictive of ITLcp. At the Unit level, both *unit type* and *Nurse-Nurse interaction* were predictive of NLRN ITLcp. Because most NLRNs worked in adult medical-surgical units (54.7%), I used adult medical-surgical units as the comparison group for the multi-level logit analysis. There were no statistically significant differences between the ITLcp on medical-surgical units compared to adult step-down, psychiatry, or rehab units. When I compared pediatric medical-surgical units to adult medical-surgical units, the Odds Ratio (OR) of .4983 ([.3671, .6764] $p < .0001$) indicated that the odds of ITLcp were 50% lower in pediatric units. . Similarly, the odds of NLRNs working in adult critical care intending to leave were 50% less than their peers on adult medical-surgical units (OR .4864 [.3999, .5916] $p < .0001$). The odds of ITLcp for NLRNs working in medical-surgical units were 76% higher when compared to NLRNs on Neonatal units (OR .3277 [.2194, .4892] $p < .0001$).

The *Nurse-Nurse Interaction* variable was significantly associated with ITLcp (OR .7919 [.6357, .9864] $p = .0373$). For every one point increase in mean score of *Nurse-Nurse Interaction*, the odds that a NLRN would intend to leave decreased by 21%.

Individual-level Variables Associated with ITLcp

After controlling for all other variables in the model, the following individual-level factors were associated with ITLcp:

Age. The OR for *age* was .9696 [.9614, .9779], $p < .0001$. Younger nurses had a higher ITLcp, in fact, for every one year decrease in age the ITLcp increased by 3%.

Gender. The odds of NLRN females intending to leave their current position was 37% lower than males. (OR .6274 [.5294, .7435] $p < .0001$).

Tenure on unit. For every unit increase in *tenure on unit* (3 months – 6 months, 6 months – 1 year, > 1 year - < 2 years) the odds that a NLRN would intend to leave increased by 31% (OR 1.3119 [1.2048, 1.4285] $p < .0001$).

Shift. Proportionately more NLRNs worked days than any other shift (41.1%), although 38.3% worked night shift. Day shift was used as the reference category. ITLcp among NLRNs working evening shift and those who indicated “no usual shift” was not significantly different from NLRNs working day shift. However, the OR for the night shift was 1.1879 [1.0511, 1.3425] $p = .0058$, indicating that the odds of ITLcp were 19% higher for NLRNs working on the night shift.

Individual job satisfaction. Job satisfaction scores were an important correlate of ITLcp. For every one point increase in mean job satisfaction score, the intent to leave decreased by 70% OR = .3079 [.2805, .3381] $p < .0001$.

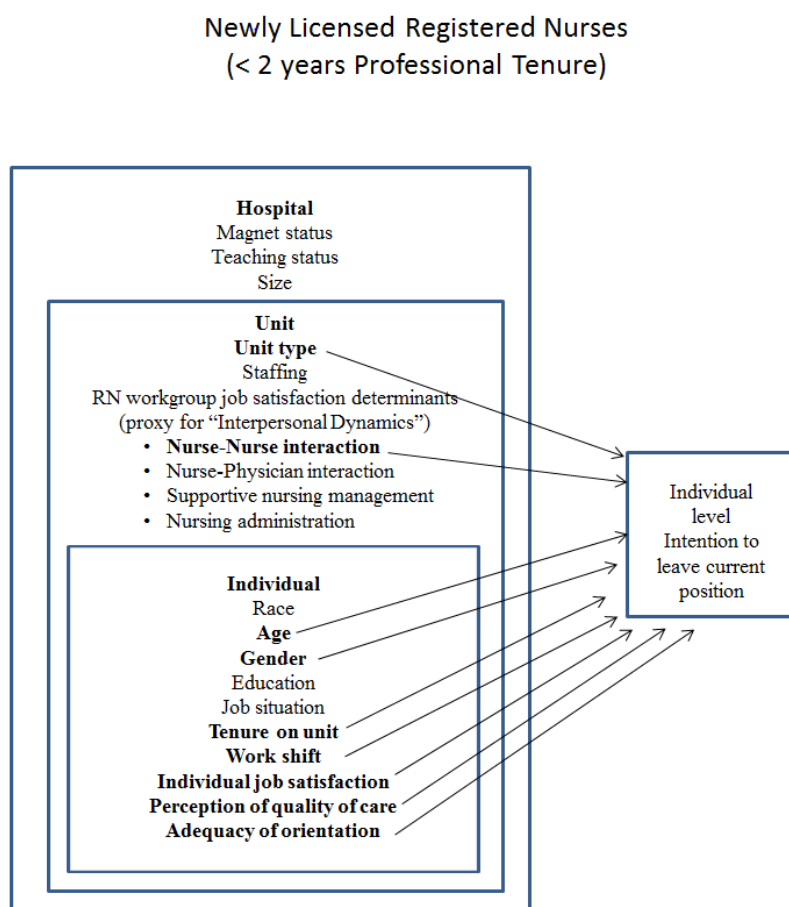
Quality of Care. When the NLRNs rated the quality of care provided on their unit favorably, the odds of ITLcp decreased by 44% (OR .5611 [.4597, .6849] $p < .0001$).

Adequacy of Orientation. When nurses tended to agree, agreed, or strongly agreed with statement: *I received an orientation that adequately prepared me for my current position* the odds of ITLcp decreased by 21% compared to those who rated their orientation unfavorably (OR = .7933 [.6608, .9524] $p = .0130$).

Figure 12 depicts the revised conceptual model, indicating those variables that were significantly associated with ITLcp in NLRNs.

Figure 12

Significant Predictors of ITLcp in NLRNs



Summary

In Chapter 4, I presented the results of the secondary data analysis. This included a detailed description of the sample that was organized by the cluster categories of hospital, unit, and individual. Then I presented the results of the hierarchical analysis of four different models if ITLcp in NLRNs. The models varied in terms of the staffing variable. The variables of significance tended to be common across all four models, however Model 3 demonstrated the best statistical fit (had the lowest -2 residual log pseudo-likelihood). I also found Model 3 demonstrated the best theoretical fit because the variable of *Nurse-Nurse interaction* was found to be significant. *Nurse-Nurse interaction* was significant in two of the four models, but Model 3 was selected because it also had the best statistical fit.

The continuous/ordinal variables that were negatively associated with ITLcp were: *Nurse-Nurse interaction*, *age*, and *job satisfaction*. A positive association existed between ITLcp and *tenure on unit*. For categorical variables, the odds of intending to leave one's current position were higher for males, working the night shift (compared to days), perceptions of higher quality of care, and perception of an orientation that adequately prepared the NLRN for their position. In Chapter Five, I will discuss the results relative to the research question. I will also compare the characteristics of the sample to the population characteristics. Finally I will identify some unanswered questions and present ideas for further research in this area.

Chapter Five: Discussion, Conclusions, and Recommendations

Introduction and Primary Aim

In Chapter Five, I will discuss the findings relative to the research aim, the value of the model, and the contribution to NLRN job intention research. The aim of this study was to determine the relationship between selected individual factors (race, age, gender, education, job situation, tenure on unit, work shift, individual job satisfaction, perception of quality of care, and adequacy of orientation), and unit-based factors (unit type, staffing, nurse-nurse interaction, nurse-physician interaction, supportive nursing management, and nursing administration) controlling for selected hospital characteristics (Magnet® status, teaching status, and size) on new nurses' intention to leave their current positions (ITLcp) in acute care facilities. The conceptual model under investigation was depicted in Figure 1. The theoretical and statistical models acknowledged that data collected from individual nurses were not independent, but rather, these data were related to one another based on the influence of each unit within each hospital on the individual nurse. The variables included in the model had been suggested in other conceptual models of NLRN transition.

Significance of the Study

According to the U.S. Department of Labor (2012) the United States will need to expand the RN workforce by 26% in order to meet the country's healthcare demands. More RNs will be required to care for an aging population plagued by more chronic conditions, including obesity. Additionally, because of the *Affordable Care Act*, it is presumed that more persons will be adequately insured, and as a result, they will be more likely to seek medical care (Staiger et al., 2012).

The predicted RN shortage was placated by the economic recession, in that, financial insecurity caused many nurses to postpone their retirement. Also, since jobs in healthcare were not impacted by the economic slump, some nurses who had left the workforce returned. As the economy recovers, it is probable these nurses as well as those who are retirement eligible will leave the workforce (Juraschek et al., 2012). Therefore, it is important to find ways to support new nurses during their transition between academia and practice to retain them in the workforce.

There is a substantial amount of research describing the difficulty that nurses experience as they transition from academia to practice. The troublesome transition was diagnosed as “Reality Shock” by Kramer (1974), as “Transition Shock” by Boychuk-Duchscher (2008, 2009), and most recently as “Environmental Reality Shock” by Kramer and colleagues (2013). Much of the new nurse’s turmoil has been attributed to challenges in the practice environment. Patient care is more complicated because of multiple comorbidities, more complicated care options, and more technology. According to Boychuk-Duchscher and Cowin (2004), between 35-61% of new nurses either leave their current position, or the profession all together within the first year. Training more nurses seems to be a short-sighted solution to the nursing shortage. Rather, it is important to understand the individual and work environment variables that are correlated with retention of new nurses so that transitional programs can be crafted to support the new nurse.

Intention to leave one’s current position was selected as the outcome variable because job intention, either to leave one’s profession or to leave one’s current position are the best predictors of actual turnover (Boyle et al., 1999; Cavanaugh & Coffin, 1992; Simon et al., 2010). It is important that NLRNs are retained in their positions for 2-3 years, or until they have reached

a level of competence (Benner, 1982), therefore, the NLRN was operationally defined as a nurse with less than, or equal to two years of experience.

This study is important because it identifies factors that may help acute care facilities retain NLRNs in their positions long enough to reach competency, which would be two to three years, according to the Theory of Skill Acquisition (Benner, 1982). Retaining competent nurses at the bedside should be a priority for providing safe and high quality patient care, particularly in light of new payment models that are based on hospital's quality and safety performance measures. Although several researchers of NLRN transition presented conceptual models that stressed the importance of socialization and relationships (Gustavsson et al., 2010; Little et al., 2013; Scott et al., 2008; Tominaga & Miki, 2011; Washington, 2013), this study was the first to evaluate the correlation between NLRN ITLcp and the relationship capacity of the unit-based team.

Discussion of Results

The NDNQI® RN Survey with Job Satisfaction Scales and associated staffing data provided a sample from all 50 States, and the District of Columbia. The sample was large enough to provide the statistical power for a three-level hierarchical model and to investigate smaller cohorts within the sample (i.e. non Caucasians and males). I will present the synthesis of the results organized by the three cluster variables: Hospital-level, unit-level, and individual-level.

Hospital-Level Variables. No significant correlations were found between any of the hospital-level variables and NLRN ITLcp. A sign change between the zero-order and partial correlation raised suspicion for a modest amount of suppression between *Magnet®* and *hospital size* (See Table 10). Since the collinearity statistics were within the acceptable limit, this finding did not threaten the validity of the findings.

Magnet® hospitals. Of the 210 different hospitals represented in this study, 31.4 % of them were Magnet® facilities, and slightly more than half of the NLRNs worked in Magnet® facilities. According to the American Hospital Association (2014) there are 5,723 registered hospitals in the United States and of these 401 (7.01%) are Magnet® facilities (ANCC, 2014b). Although the sample was not representative of the population in terms of the Magnet® designation, having equal representation from Magnet®/non-Magnet facilities presented a favorable sample in terms of statistical comparisons.

Since the essentials of Magnetism (Table 6) are thought to be important for healthy work environments and nurse retention, one would think that NLRNs working in Magnet® hospitals would have significantly less ITLcp than those working in non-Magnet facilities. However, this was not the case in this study. Hatler et al. (2011) demonstrated correlations between NLRN retention and subscales of the Essentials of Magnetism, and Kramer's study of NLRN ITLcp in 17 Magnet® hospitals found a direct correlation between ITLcp and the health of the work environment. The lack of significant differences between Magnet® and non-Magnet hospitals is likely attributed to the nature of the sample.

It is possible that the forces of Magnetism known to attract nurses are not as attractive to the NLRN. This study provided some evidence that NLRNs have different work environment preferences when it comes to unit-level interpersonal dynamics. Four measures of unit-based interpersonal dynamics were used in this study: *Nursing Administration*, *Supportive Nursing Management*, *Nurse-Physician Interaction*, and *Nurse-Nurse Interaction*. There are similarities between three of these measures and three of the fourteen forces of Magnetism. The subscale measuring *Nursing Administration* offered a unit-based, work group perspective of quality of *Nursing Leadership* (Magnet® Force #1). Similarly, the subscale *Nursing Management* offered

a work group perspective of *Management Style* (Magnet® force #3) and although not inclusive of all professions, the subscale of *Nurse-Physician Interaction* provided a glimpse of the unit-based perspective of *Interdisciplinary Relationships* (Magnet® force #13). Since none of these unit-based measures of interpersonal dynamics were significant predictors of ITLcp, it is possible that these three forces of Magnetism are not attractors for the NLRN. One cannot assume the named subscales from the RN Survey with Job Satisfaction Scales are proxy measures for the corresponding forces of Magnetism. Further research would be required to identify correlations (if any) between the subscale scores of unit-level interpersonal dynamics and ratings from actual Magnet applications.

Although *Autonomy* (Magnet® Force #9) is attractive to nurses in general, (Leveck & Jones, 1996; Liou, 2009, Taunton, 2004) the literature has suggested that autonomy is not important to new nurses. To the contrary, there is an overall sense of insecurity that is not compatible with autonomous practice (Boychuk-Duchscher, 2008). The data from this study supported the theoretical assumption that autonomy does not contribute to the job satisfaction of the NLRN. In the Factor analysis, autonomy did not load on the single factor scale (.193). The eleven item scale (including autonomy) had a lower Coefficient alpha (.854) than when autonomy was eliminated leaving ten items (.866). These findings supported the notion that ten items, exclusive of autonomy, more accurately represented the construct of job satisfaction for this sample.

Although there is some evidence that NLRNs value different work environment characteristics than the overall nursing population, there may also be a sampling bias that contributed to the insignificance of the Magnet® hospital measure. The Magnet® application process occurs over two years, and during the application process the hospital is required to

submit data (ANA, 2012) to a national data base such as NDNQI®. The number of hospitals in this sample who were in the Magnet® application process is not known. It is likely that during the application period, some of the non-Magnet hospitals in this sample would be working to achieve the quality measures associated with Magnet® status. This would make Magnet® bound hospitals more “Magnet-like” than other hospitals across the country that are not seeking the Magnet® designation. Although this large and diverse sample provided an excellent opportunity to investigate the factors related to NLRN ITLcp, this may not be the best sample for demonstrating correlations associated with Magnet® designation.

Teaching status. The 210 hospitals in this sample were composed of 40.5% teaching institutions, 48.1% non-teaching, and 11.4% academic medical centers. According to The Association of Academic Health Centers (AAHC) (2014) there are approximately 100 academic health centers in the country, making up about 3% of all hospitals. Academic health centers were more highly represented in the NDNQI® sample as compared to the actual population demographics. No significant correlations were noted between the teaching status of the hospital and ITLcp of NLRNs. The distribution of NLRNs across hospital types was fairly equal, with 40.9% of them working in teaching hospitals (clinical sites for interns or residents), 30.9% in academic medical centers (primary clinical site for school of medicine), and 28.2% in non-teaching hospitals (hospitals are not clinical sites for interns or residents). A vast majority of NLRNs (70.18%) worked in hospitals that were clinical sites for training physicians.

Although Kramer et al. (2013) did not specifically study the outcome of intent to leave; the researchers found the type of hospital influenced the NLRNs expectations of the work environments. NLRNs in academic medical centers had higher expectations of the work environment, particularly as it related to the Nurse-Physician relationship when compared to

NLRNs working in community hospitals. The NLRNs in the academic medical centers also perceived their staffing to be more adequate, and expressed a higher level of control over their practice than the NLRNs working in community hospitals. Kramer and colleague's (2013) sample was derived from only Magnet® hospitals and in their sample 60% of the nurses were employed in academic teaching hospitals. In the study being reported, the sample is more reflective of the population as compared to the Kramer et al. study, lending support for this study's findings related to teaching status.

Hospital size. For the multi-level hierarchical analysis, the sample was analyzed based on bed size as a dichotomous variable (< 300 or ≥ 300). While only thirty percent of the hospitals were greater than 300 beds, 64.4% of the NLRNs worked in large hospitals. The sample over-represented nurses working in large hospitals because the NCSBN (2010) reported 48.9% of NLRNs worked in hospitals with more than 300 beds.

In this study, the size of the hospital was not correlated with NLRN ITLcp. This finding aligned with Tominaga and Miki's (2011) results. It is important to note that Tominaga and Miki studied NLRNs working in Japanese hospitals that were overall much larger than the U.S. hospitals in this sample. Tominaga and Miki's described the hospitals in their sample as one third < 499 beds. The largest hospitals were >1000 beds and comprised 8.4% of the sample. Tominaga and Miki found NLRNs working in larger cities had a higher intent to leave, and they attributed this finding to more job options in larger cities. Larger hospitals are generally found in cities, however, it is not known if city size, or hospital size are valid proxies for job availability.

Unit-level variables. The unit-level variables that were significantly related to NLRN ITLcp included: *Unit type* and *Nurse-Nurse Interaction*. The variable that captured the nurse's perception of their assignment was used in two of the models, and was significant in both; this

variable was not included in the final model that was chosen. As discussed earlier in this section, the *Nurse-Physician Interaction*, *Supportive Nursing Management*, and *Nursing Administration* measures were not significantly related to NLRN ITLcp.

Unit type: The sample distribution by unit type was similar to the distribution described by the NCSBN (2010) in that most nurses worked in medical-surgical nursing (39.5%), followed closely by critical care (34.5%). However this sample had proportionately more medical-surgical nurses (54.7%) and fewer critical care nurses (14.4%). Pediatric and Psychiatry were nearly identically represented.

The type of nursing unit was a significant predictor of ITLcp for NLRNs. In this analysis, all units were compared to the reference group of medical-surgical units. In a similar analysis of unit-based work satisfaction using NDNQI® surveys that were not limited by professional tenure, Boyle et al. (2006) reported that nurses working on pediatric, rehabilitation, and outpatient clinics were the most satisfied, and nurses working in Psychiatry and Surgical Services were among the most dissatisfied. Acknowledging the correlation between individual job satisfaction and ITLcp, my study supported the idea that pediatric as well as neonatal nurses were likely more satisfied, and thus less likely to intent to leave their positions. There were no significant differences in NLRN ITLcp between those working in Psychiatry and medical surgical units.

This study did not include surveys of nurses working in outpatient clinics, but the data captured ITLcp for NLRNs working in rehabilitation units. In striking contrast to the findings presented by Boyle and colleagues, ITLcp was higher in rehabilitation units compared to the medical-surgical units and this finding reached statistical significance in two of the four models. It was interesting to learn that a significantly higher ITLcp for NLRNs working in rehabilitation

(compared to medical-surgical units) existed when the NLRNs perception of the staffing was included in the model. The significance of this finding is unclear, but there may be an interaction effect between the perception of staffing and the type of care that is provided on a rehab unit. Patients undergoing rehabilitation require different skills, and commonly more than one person is required to lift and move patients. The NLRNs' perception of staffing appropriateness would likely correlate with the availability of help. Further study is warranted to fully understand the factors influencing ITLcp for the NLRN in rehabilitation units.

NLRNs working in critical care units had lower ITLcp than those working in medical-surgical units. According to Boyle et al. (2006) both telemetry and medical-surgical nurses had higher job satisfaction scores than critical care nurses. It was not surprising to find the majority of nurses (72.9%) started their careers in adult medical-surgical or step-down units. However, it was concerning to learn that NLRNs working in these very units had significantly higher rates of ITLcp than their peers who started in critical care, pediatrics, or neonatal units. Further research is indicated to learn why these NLRNs intend to leave. Are they dissatisfied? Or perhaps they see a year or two of medical-surgical nursing as a stepping stone for their desired position.

Staffing. In the analysis of four models, I used three different staffing measures: Model 1: Assignment appropriate (nurse's perception of staffing adequacy), Model 2: Total nurse hours per patient day, and Model 3: RN hours per patient day. In the fourth model, I used two measures, RN hours per patient day and staffing adequacy. Neither of the administrative measures (RN hours per patient day nor Total nurse hours per patient day) were significant predictors of ITLcp for NLRNs. Although midnight census is a common way to measure patient days, on units with short stay patients, the midnight census may underestimate patient days

(Simon, Yankovskyy, Klaus, Gajewski & Dunton, 2011), and certainly does not capture the increased nursing time required for admissions, transfers, and discharges.

I selected Model 3 based on statistical fit and theoretical congruency, but in Model 3, the measure for staffing RN hours per patient day was not a significant predictor of NLRN ITLcp. On first look, one would say the finding from this study were not aligned with previous findings, where staffing was correlated with organizational commitment (Bratt, 2012), emotional exhaustion and turnover intention (Spence Laschinger et al, 2012b) and other transitional outcomes (Godinez et al., 1999; Schoessler & Waldo, 2006). None of these studies used administrative measures of staffing, but instead used the nurses' perception of staffing adequacy. In this study, the administrative measures for staffing adequacy (Total nurse hours per patient day and RN hours per patient day) were not correlated with ITLcp, however, the nurses' perception of staffing adequacy was a significant predictor in both Model 1 and Model 4. This finding supports results from other nursing research that used the nurses' perception as a measure of staffing adequacy. Curiously, in this study, when the nurses' perception of staffing was added to the model, the -2 Residual Log Pseudo-likelihood increased slightly indicating the model did not fit the data as well. It was also interesting to note than when the nurses' perception of staffing adequacy was added to the model, the nurse-nurse interaction measure was no longer a significant predictor of ITLcp. This finding will be discussed in the next section.

Measures of unit-based Interpersonal Dynamics. All measures of unit-based interpersonal dynamics were considered unit-based measures and therefore were based on the opinions of all nurses on the unit. Overall nurses rated their nurse-nurse relationships the highest (Mean 4.56, SD .347). The Manager subscale received the second highest rating (Mean 4.30, SD .63), but the manager subscale also had the largest spread in the data. The Nurse-Physician

relationship was also favorably rated (Mean 4.10, SD .362). The Administration subscale had the lowest rating (mean 3.83, SD .505). Each of the subscales used a 6-point Likert-type scale.

Nurse-Nurse Interaction. *Nurse-Nurse Interaction* was a significant predictor of ITLcp as long as the “Assignment was appropriate” measure was not in the model. This is a curious finding that requires further study. It is conceivable that when the NLRN perceives the unit is short-staffed, the nurse-nurse interaction becomes a lesser concern. From a statistical perspective, it is possible that some of the variance of ITLcp that is explained by nurse-nurse interaction overlaps with the perception of staffing measure, although this was not apparent in the partial correlation measures (Table 10). From a theoretical perspective, the new nurse transition literature supports the importance of NLRNs building strong interpersonal relationships with their colleagues (Godinez et al., 1999, Little, et al, 2013; Schoessler & Waldo, 2006; Scott et al., 2008; Spence et al., 2012a, 2012b). Beecroft et al., (2008) also found personal feelings about the work group’s cohesion influenced NLRN intent to leave. It is also possible that the NLRNs’ opinions of the supportiveness of the work group do not mirror the entire workgroup’s assessment. The RN workgroup assessment was the measure of *Nurse-Nurse Interaction* that was used in this study.

Nurse-Physician Interaction. The unit-based measure of *Nurse-Physician Interaction* was not significantly correlated with ITLcp in NLRNs. Although it is important to integrate NLRNs into the unit-based interprofessional team to provide the highest quality care (Little et al., 2013; Schoessler & Waldo, 2006) there was no evidence linking Nurse-Physician interaction to intent to leave in NLRNs.

Supportive Nursing Management. The unit-based measure of *Supportive Nursing Management* was not correlated with NLRN ITLcp. The new nurse literature does not

specifically address the importance of the relationship between the NLRN and manager. Others have found that in samples not limited by tenure, the relationship between the supervisor and the nurse was significantly related with intention to leave (Brunetto et al., 2013; Wade et al., 2008). In fact, Wade and colleagues found caring attitudes of managers were not predictive of job enjoyment, however, relationships existed between the nurse manager's ability and job enjoyment, indicating effective management practices were more important to job enjoyment than interpersonal relationships.

Nursing Administration. The unit-based measure of *Nursing Administration* was not associated with ITLcp in NLRNs. Spence Laschinger et al. (2012) studied the impact of Authentic Leadership on NLRN ITL in acute care hospitals in Ontario, Canada. They found no direct link between Nursing administration and job intention, however they did demonstrate an indirect link between Authentic Leadership and workplace bullying which led to emotional exhaustion and a negative effect on job satisfaction. Authentic Leadership, directly and positively influenced job satisfaction which positively impacted job intention.

Individual-level Variables. In order to assess the generalizability of the individual-level variables, I compared these results to the characteristics of all new nurses reported by The National Council of State Boards of Nursing (NCSBN). These demographic data provided a fairly comprehensive composite to describe new entrants to the Nursing profession. These data were reported by Health Resources and Services Administration (HRSA) (2013). In addition, the NCSBN published a study comparing entry-level RNs in the U.S. to those in Ontario, Canada (2010). I also examined Nursing student demographic data from the National League for Nursing (NLN) 2012 annual surveys of Schools of Nursing (2013) for comparison purposes.

Race. The National League for Nursing (NLN) reported that in 2012, 67.5% of those enrolled in pre-licensure RN programs were Caucasian, compared to this sample's composition of 77.7% Caucasian. Among the minority races, Black/African Americans comprised 12.9% of all pre-licensure RN students. In the study sample, 6.3% of the participants were Black/African Americans. Hispanics were slightly under-represented at 5%, compared to 6.8%.

In a secondary data analysis of North Carolina Center for Nursing data, Scott et al. (2008) found a correlation between race and job satisfaction, and ultimately job intention. More specifically, they reported that Caucasians were five times more likely to be satisfied with their jobs. The sample analyzed by Scott et al. was much smaller than this study (N=319) and was only 13.5% non-white. Bratt and Felzer (2012) found no relationship between race and organizational commitment. They used a slightly larger sample, (N=468), but the sample was 91% Caucasian.

It is suspected that the educational characteristics of the NDNQI® sample may have created a slight skew in the racial demographics. Although the sample contained a higher than average number of Caucasians, it is more inclusive of the minority races than the samples described by other researchers who reported correlations between race and outcomes of NLRN transition. It is also important to acknowledge the fact that the very large sample size (N=8297) allowed a more robust three level hierarchical statistical analysis that was not undertaken in the other studies. Failure to consider the influence of the cluster variables (unit and hospital) may have resulted in attributing variance in the data to racial differences when they were actually a result of unit or hospital characteristics.

Age. The NCSBN (2010) reported that first time NCLEX exam takers were on average 31.89 years of age (SD 8.94). The mean age of this sample was slightly younger, 28.76 (SD

7.713) and 67.11% of the sample were under age 30. In the population description reports, students graduating from non-BSN programs tended to be older. Half of the graduates from Associate Degree programs and one third of the graduates from diploma programs were over age thirty, compared to only 16% of BSN students (NLN 2013). This study had a higher representation of BSN students that likely resulted in a slightly younger sample.

This study found that younger NLRNs had a higher ITLcp, and for every one year decrease in age, the rate of ITLcp increased by 3%. Beecroft et al. (2007) also found younger nurses had a higher turnover intention. In a study of ITL among age cohorts of nurses, Klaus, Eckerdt, and Gajewski (2011) found that even though the youngest cohort had the highest job satisfaction, they were the most likely to leave their current position within the upcoming year. Tominaga and Miki (2011) also reported a correlation between age and ITL, but they found intention to leave scores significantly higher for older nurses. Others (Bratt & Felzer, 2012; Scott et al, 2008) found no correlation between age and job intention. It is important to note that Scott et al. (2008) studied ITL in the first three years of practice; 30% of the sample was over age 30, and 55% of the sample had already quit their first job.

Gender. In a 2008 survey, the NCSBN reported 11.7% of new RNs were male. In 2012 14% of Baccalaureate students, 15% of Diploma students, and 15% of Associate Degree students were male (NLN, 2013). The sample appropriately represented the male gender at 11.4%. In the analysis, females were 37% less likely to intend to leave than males. These findings were consistent with Tominaga and Miki's (2011) assessment, although Bratt and Felzer (2012) found no correlation, which may be related to the small number/proportion of males in the sample (N=26 or 5.7%).

Education. In recent years there has been an increase in the number of persons pursuing nursing education, in fact, Health Resources and Services Administration (HRSA) reported a 107.7% growth in new nurses passing the National Council Licensing Examination (2013). Bachelor's prepared candidates doubled, and comprised about 44% of the overall growth in newly graduated nurses. Although the numbers of BSN prepared licensure candidates has increased, the majority of new nurses (59.7%) are prepared at the associate's degree or diploma level. By contrast, most of the nurses in this sample had a Baccalaureate or higher degree (63.5%). Although diploma programs make up fewer than 10% of all nursing programs in the United States, minority students comprise 73% of diploma school enrollments (NLN, 2013). Since the demographic make-up varies based on the type of educational program (BSN, ADN, or Diploma), these differences help explain the slight dissimilarities in age and racial make-up in the sample as compared to the overall population of new nurses.

There is also evidence that more nurses are continuing their education. Between the years of 2007 and 2011, the RN workforce has seen a dramatic increase in the number of Associate Degree nurses who achieve Baccalaureate degrees (86.3% growth), the number of BSN nurses earning nursing graduate degrees has increased by 67.4% (HRSA, 2013). The timeline between graduating from an Associate Degree or Diploma program and enrolling in a BSN completion program was not specified. It is possible that some NLRNs are completing their Bachelor's degrees during the first two years of their employment, and thus, some nurses may have been educated first in an Associate Degree program, then gone on to complete their BSN. If enough ADN nurses became BSN prepared during the first two years of their tenure, the educational characteristics of the sample may be more representative of the population than the numbers suggest. Looking beyond the sample comparison, further study is warranted to learn how many

NLRNs are enrolling in Graduate programs or BSN completion programs, and the impact of undertaking an academic program during the RN transition process.

In the three-level hierarchical analysis, education was not correlated with ITLcp, and these results supported findings by Kramer et al (2013). Tominga and Miki (2011) found nurses graduating from a junior college or a vocational school were more likely to intend to leave. Scott et al. (2008) described a correlation between education and job intention through NLRN job satisfaction. They reported that ADN nurses were three times more likely to be satisfied with nursing as a career than BSNs. These conflicting findings require further investigation. It is possible that cultural differences may be at play (Tominga and Miki, 2011). Additionally, one must consider how individual programmatic characteristics could influence the results in a sample that was drawn from a limited population (i.e. the state of North Carolina) (Scott et al., 2008).

Job situation. In this sample, an overwhelming majority of the NLRNs worked full time (91.1%). I did not find any workforce reports describing the proportion of NLRNs that are employed full time. RNs that are 30 or younger work an average of 37 hours per week, and the number of average hours worked remained stable unit about age 60 (HRSA, 2013), so the sample seems to be a fitting representation of the population of NLRNs in that most nurses are employed full time. There were no significant correlations between ITLcp and the NLRNs employment situation. This result aligned with the meta-analysis by Thorsteinson (2003), finding no significant attitudinal differences between full time and part time workers.

Tenure on unit. About half of the NLRNs in this study (54%) had 6-12 months tenure on the unit, while approximately one third of them had 1-2 years of experience on the unit. There was a significant relationship between ITLcp and the length of time on the nursing unit. Bratt

and Felzer (2012) studied NLRNs during their first three years of practice. In their sample, the average length of time in the current position was 6.8 months, and they did not find a significant correlation between months in current job and the transitional outcome of organizational commitment.

Boychuk-Duchscher's model of NLRN transition (2008) depicts a tumultuous transition that occurs over twelve months. The NLRN progresses through stages of Doing, Being, and Knowing. The Knowing stage is characterized by "recovery" and reaching a stage of "separateness" (p. 447) as they join the community of professional nursing. Boychuk-Duchscher reported the nurses were relatively comfortable and confident with the care routines, but they were "also taking notice of the more troubling aspects of their sociocultural and political environments." (p. 447). The conceptual model depicts the NLRN has passed through the transitional crisis, with an accompanying sense of 'all is well'. The results from this analysis seem to be at odds with that notion, because the longer the nurses were on the unit, the more likely they were to leave. It is possible they were leaving their current position for their desired positions, or even more challenging positions. If nurses have reached a level of competence with their current position at one year, and are seeking promotional opportunities, then the timeline for moving from novice to competent may actually be shorter than two or three years, as proposed by Benner (1982). This discrepancy deserves further investigation.

Work shift. The distribution of the sample between day shift (41.1%) and night shift (38.3%) was fairly typical for NLRNs. According to the NCSBN (2010), 42.3% of nurses joining the workforce work the day shift, while 34.8% work nights. Working the night shift increased the likelihood a NLRN would intend to leave by nearly 19%. The evaluation of shift on job intention

of NLRNs was astonishingly absent in the literature. Bratt and Felzer (2012) found no relationship between shift and organizational commitment.

Individual job satisfaction. This study provided evidence that NLRNs tended to be satisfied with their jobs and the multi-level hierarchical analysis affirmed findings that identified a relationship between job satisfaction and job intention (Beecroft et al., 2007; Boyle et al., 1999; Scott et al., 2008). The odds ratio indicated job satisfaction was key, since for every one point improvement in the job satisfaction scale, the odds that the NLRN would intend to leave decreased by a dramatic 70%. Acknowledging that the majority of NLRNs fell in the age range of 20-29 years (67.11%) the work by Klaus et al. (2011) also inform the findings of this study, specifically that nurses in their twenties became significantly less satisfied the longer they worked on the unit. According to Scott and colleagues, among NLRNs the frequency of staffing shortages was the best predictor of job satisfaction, so it is possible that any concerns with staffing were captured within the measure of job satisfaction.

Perception of quality of care. Klaus et al. (2011) demonstrated a correlation between quality of patient care and job satisfaction for nurses in all age cohorts. A satisfying work experience is certainly related to a nurse's ability to deliver high quality nursing care, and that concept was demonstrated in this study as well. Overall the NLRNs in this study rated the quality of care delivered on their unit as good or excellent. When quality of care was rated favorably, the odds of ITLcp decreased by 44%.

Adequacy of orientation. The adequacy of the NLRN orientation was significantly correlated with ITLcp. Most nurses rated their orientation favorably, and when ratings were favorable, odds ratios for ITLcp decreased by 21% as compared to nurses who rated the quality of their orientation as inadequate. Scott et al. (2008) found quality of orientation was a

significant predictor of job satisfaction and they found that NLRNs who were more satisfied with their jobs were more likely to also be satisfied with their orientation.

Strengths and Limitations of the Study

This study used a large and diverse sample collected from a variety of hospitals across the country. Although a few of the sample characteristics were not totally representative of the population of NLRNs, overall the nationally collected data housed by the NDNQI® provided a valuable dataset to assess correlations of NLRN job intention. This dataset offered a degree of statistical power that would not have been possible with smaller datasets. The sample was large enough to support a multi-level analysis, and analyzing the data in this way was required for statistical validity, since the data did not meet the assumption of statistical independence. The phenomenon of interest was influenced by higher organizational levels, specifically nursing units nested within hospitals. The conceptual model was theoretically strong, as the constructs that were evaluated were selected based on a thorough review of the conceptual models that have been presented in the literature.

The placement of each construct in the model was carefully considered. This study strategically captured the unit-based factors thought to influence NLRN ITLcp, including the unit-based interpersonal dynamics. Reporting the response of the RN workgroup is unique to NDNQI®, and these data offered a conceptually sound and fresh perspective from which to view how the unit's characteristics correlated with the phenomenon of concern. Incorporating the actual staffing data added a dimension that had not been captured by other studies.

As with any secondary data analysis, this research was limited by the scope of the previous data collection. The data were collected as a part of a convenience sample, and some

bias may have been introduced since hospitals are self-selected survey participants. The survey was anonymous, so it was not possible to assess non-response bias.

Some concepts that have been shown to be important to NLRN job intention, job satisfaction, and turnover were not captured by the NDNQI® survey. For example, job competence (Beecroft et al., 2007), job readiness, (Tominaga & Miki, 2011), person-job fit (Cohen-Mansfield, 1997), working on one's desired unit (Bratt & Felzer, 2012; Tominaga & Miki, 2011), sentiment toward the hospital (Tominaga & Miki, 2011), marital status (Scott et al., 2008), and conflicts between work and family life (Simon et al., 2010) have been cited as important by others, but were not part of the NDNQI® data. The general workforce literature underscored the relationship between job intention, movement capital, and job availability (Forrier et al., 2009), highlighting the interplay between the constructs of risks, opportunity, and movement capital. City size has been used as a proxy measure for job availability, but this analysis did not capture city size or job availability. Future research to evaluate the impact of job availability on NLRN job intention is needed, particularly given the increased competition for NLRN jobs.

Conclusions and Recommendations for Further Research

NLRN transition and intent to leave one's current position is a complex phenomenon and more exploration is needed to better understand all of the factors. About a third of NLRNs expressed intent to leave their current position within the year. It was comforting to see that only 4% planned to leave the bedside, and very few (0.4%) planned to leave the profession. The results of this analysis suggested NLRNs ITLcp is influenced by both unit and individual factors. This study provided a model that incorporated the unit factors of *unit type* and *Nurse-Nurse Interaction*. Individual variables of significance included *age*, *gender*, *tenure on unit*, *work shift*,

individual job satisfaction, perception of quality of care, and adequacy of orientation. The multi-level analysis was statistically strong, and validated the significance of several variables in the model, this analysis did not identify the total amount of variance explained by the model, nor did it provide estimations of the variance explained by each factor. This represents an opportunity for further research.

The type of unit was significantly correlated to NLRN ITLcp. NLRNs on adult medical-surgical units had consistently higher odds to intend to leave than their colleagues working in neonatal, pediatrics, and critical care. Further assessment of the transitional experience of medical-surgical nurses is warranted. Although the survey did not capture why the NLRN intended to leave, 15.1% of all NLRNs planned to change units within the hospital. It is not clear if the nurses were changing units because of unpleasant characteristics of the job environment, the person-job fit, or because they felt they had mastered the role. It was clear that longer unit tenure was associated with higher levels of intent to leave their current position.

It is possible that some new nurses complete the first year or so of medical-surgical nursing as the first step in their career trajectory. Boychuk-Duchscher (2009) proposed that during the final stage of transition (8-12 months) NLRNs are confident and competent in their nursing role. They are functioning as charge nurse, serving as preceptors to new nurses and students, and considering opportunities for career advancement. This theoretical mismatch between the Boychuk-Duchscher's Stages of Transition Theory and Benner's Novice to Expert Theory will require further study. The answer may lie in better definitions and measures of nursing competence, as well as improved methods for communicating such feedback to the NLRNs.

The final model did not contain a staffing variable; NLRN perception of staffing was included in two of the models, and found to be significant in both—however the models with this variable did not fit the data as well both theoretically and statistically. Administrative measures of staffing including Total nurse hours per patient day and RN hours per patient day were not significantly related to NLRN ITLcp. These findings supported the work of Choi et al. (2013) who found nurse perception of staffing to be more highly correlated with the pressure ulcer occurrence than the administrative measures. Although administrative measures of staffing are important, it seems they fail to adequately capture the complex demands of patient care.

In terms of variables associated with the individual, younger nurses, male nurses, and those working the night shift were more likely to report an intention to leave their current position within the year. Additionally, this study further validated the relationship between individual job satisfaction and job intention. Although previous studies claimed relationships between both education and race and ITLcp, in this study there were no associations of significance. It is possible that the large sample with adequate representation of minorities allowed for a more robust analysis of the relationship between race and job intention. The multi-level modeling also controlled for any variance that should be attributed to the hospital and unit.

There is an important link between the quality of orientation and NLRN ITLcp. This finding supports the importance of high quality transitional programs. Because this correlational study cannot be used to infer cause/effect relationships, interventional studies are needed to evaluate the impact of structured orientation programs, including nurse residencies on NLRN job satisfaction and job intention.

Providing quality patient care is important to NLRNs, and they will be more likely to stay working on a unit where they perceive high quality care is being delivered. Benner's Novice to

Expert Theory (1982) suggested that new nurses reach a level of competence after two to three years. To provide quality care, efforts should be made to retain new nurses in their current position for at least that length of time. Likewise, if hospitals respond to the pay for performance models through structured quality improvement efforts, the results may have positive influences on the NLRNs job intention. New nurse transition programs that are focused on improving patient care through competency based education would result in a win-win situation for both NLRN retention and quality care.

Final thoughts

There are predictions that the RN workforce will not be able to fill the country's healthcare needs. As efforts are focused on increasing nursing school enrollments, there should be concurrent efforts to promote more effective and efficient transitions to practice. Smoother transitions begin with a better understanding of the variables that are associated with transitional outcomes. This work provides a conceptual model that was tested using multi-level statistical modeling to identify variables related to intention to leave current position in a large national sample of newly licensed registered nurses.

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Appendix

2012 NDNQI ® RN Survey with Job Satisfaction Scales ©

The NDNQI® with Job Satisfaction Scales © is copyrighted material, and could not be included in the published dissertation manuscript.